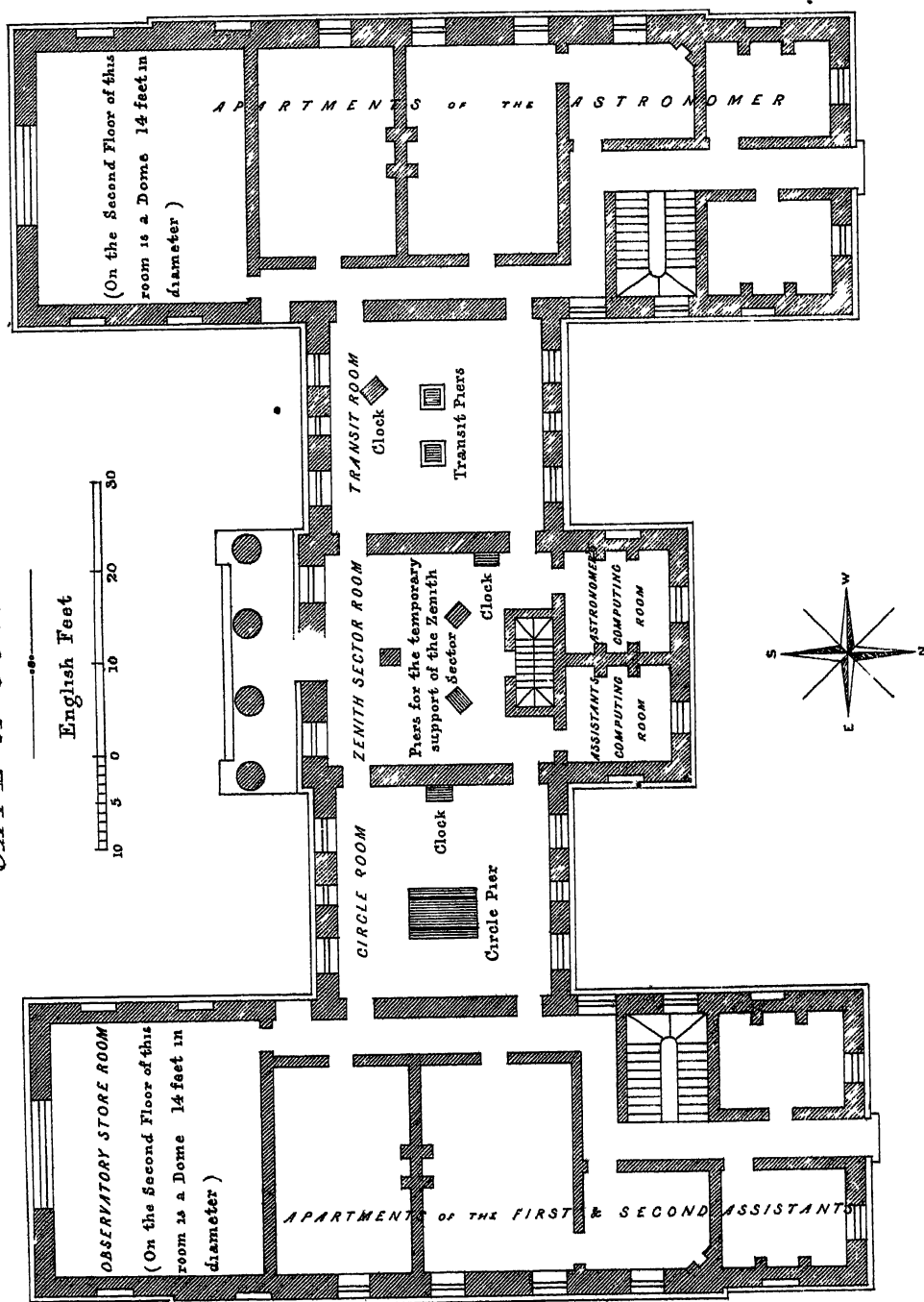


ROYAL OBSERVATORY,

CAPE of GOOD HOPE



NB The Domes are planted upon the posts of the ceiling of the First-Floor Rooms, and are accessible only by ladders rising from the First Floor and through trap-doors in the ceiling

P A P E R S.

- I. *Results of the Observations made by the Rev. FEARON FALLOWS, at the Royal Observatory, Cape of Good Hope, in the Years 1829, 1830, 1831. Reduced under the Superintendence of G. B. AIRY, Esq., Astronomer Royal.*

Read Nov. 9, 1849.

HISTORICAL INTRODUCTION.

IN presenting to the Public the results of the first observations made at the Royal Observatory of the Cape of Good Hope, it may not be uninteresting to premise a brief account of its origin and early history, derived partly from official papers of every kind preserved at the Admiralty, which I have been permitted by the Lords Commissioners of the Admiralty to inspect, and partly from the Minutes of the Board of Longitude now in my custody.

The first official document relating to the institution of this Observatory is, I believe, the following Minute:—

“At a Meeting of the Commissioners appointed by Act of Parliament for more effectually discovering the Longitude at Sea, held at the Admiralty on Thursday the 3d of February, 1820:

“Present, Lord Viscount MELVILLE (First Lord of the Admiralty), the Right Honourable Sir JOSEPH BANKS, Bart. (President of the Royal Society), JOHN WILSON CROKER, Esq., JOHN BARROW, Esq. (Secretaries to the Admiralty), DAVIES GILBERT, Esq., M P., ROBERT WOODHOUSE, Esq., JOHN POND, Esq. (Astronomer Royal), Rev. Dr. ROBERTSON (Savilian Professor of

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Astronomy), S. P. RIGAUD, Esq. (Savilian Professor of Geometry), Very Rev. Dean MILNER (Lucasian Professor), Rev. W. LAX (Lowndian Professor), Dr. WOLLASTON, Captain KATER, Major-General MUDGE (Resident Commissioners).

* * * * *

“9. Mr. GILBERT proposed that the Board should take into consideration the propriety of the establishment of an Observatory at the Cape of Good Hope, which he observed was likely to be highly conducive to the improvement of Astronomy. The motion was seconded by Sir JOSEPH BANKS, who gave it as his opinion that nothing could more essentially promote the glory of this country than to be the foremost in such an undertaking. The Committee of Instruments and Proposals, with the addition of Sir JOSEPH BANKS, Mr GILBERT, and Mr. POND, was desired to draw up a statement of the most eligible plan for such an Observatory, with an estimate of the probable expense. To meet on Thursday, the 17th, at 2”

(It appears incidentally that the Committee of Instruments and Proposals above mentioned consisted of Dr. WOLLASTON, Captain KATER, General MUDGE, and Dr. THOMAS YOUNG.)

At the meeting of 1820, April 6, the following Report was brought up from the Committee.—

“Admiralty, 17th Feb 1820.

“The Committee resolved that, since a considerable time will be required for the establishment of a complete Observatory at the Cape, on account of the difficulties arising from the abundance of sand in most parts of the country, and from other local circumstances, the Committee therefore recommend the appointment of an Astronomer at the Cape as soon as a proper person can be found, and that he be sent out with portable instruments, in order to enable the Committee to form a better judgment of the arrangements that will be required; but that, in the mean time, the principal instruments be ordered to be put in hand for the Observatory, on the same scale as those at Greenwich, and as much as possible on the same construction.”

The Committee was desired to continue their attention to the establishment of an Observatory at the Cape, and to procure estimates of the expense of the necessary instruments on the scale proposed, and to report to an Extraordinary Meeting of the Board in three weeks.

At the Meeting of 1820, April 27, the following Report of the Committee was presented:—

“Thursday, 20th April, 1820

“The following Estimates were received from Messrs. TROUGHTON, DOLLOND, and JONES, for the Instruments required at the Observatory to be established at the Cape of Good Hope:—

		£.		
Mr TROUGHTON	A 25-feet Zenith Micrometer ..	300		
	Object-glass by DOLLOND	100		
	Iron work by JESSOP and DONKIN	300	£	s
			700	0
Mr DOLLOND	A Transit	500		
	A Newtonian 7-feet Telescope, 9 in aperture .	210		
	Two 46-inch Achromatics, with various improved micrometers and extensive fields of view ..	315		
			1025	0
Mr JONES	A 6-feet Mural Circle	787	10	
	TOTAL .	£2512	10	

“The whole to be completed in two years, and a part of the payment to commence as the work goes on ”

Mr. POND observed that the Equatoreal Sector now at Greenwich might be spared for the Cape, as well as a 6-feet Newtonian telescope by SHORT, which would supersede the necessity of a new reflecting telescope, and reduce the estimates to 2300*l*.

It was ordered that the respective artists should be desired to proceed in their undertakings without loss of time, and that the Committee should use their discretion from time to time respecting the advance of money to Mr. JONES and to Mr. DONKIN, in proportion only to the work actually performed.

These Minutes were communicated by Dr. YOUNG, Secretary of the Board of Longitude, to Mr. BARROW, Secretary of the Board of Admiralty, by letter dated 1820, July 22. The Board of Admiralty expressed in their Minute their entire concurrence in the proposal, and proceeded to make the requisite communications to the Treasury and the Colonial Office.

On 1820, October 9, Mr. GOULBURN, Secretary of the Colonial Office, addressed a letter to Mr. CROKER, Secretary of the Admiralty, stating that Earl BATHURST, his Majesty's Principal Secretary of State for the Colonial

Department, fully concurring in the view which the Board of Admiralty had taken of the expediency of erecting an Observatory at the Cape of Good Hope, had, in compliance with their Lordships' recommendation, instructed the Governor of the Cape to allot a suitable piece of ground for the purpose, at the expense of the Colonial Government, and in such a situation as the Astronomer whom their Lordships might send out may think fit and eligible, and moreover to lend every possible assistance towards carrying into effect the object in view.

Finally, the Observatory was established by the following Order in Council, dated 1820, October 20 :—

“ At the Court at Carlton House,
the 20th October, 1820,

PRESENT,

THE KING'S MOST EXCELLENT MAJESTY
IN COUNCIL.

“ Whereas there was this day read at the Board a Memorial from the Right Honourable the Lords Commissioners of the Admiralty, dated the 16th of this instant, in the words following, viz. —

“ ‘ The Board of Longitude having resolved that it would be highly conducive to the improvement of Practical Astronomy and Navigation that a permanent Observatory should be established at the Cape of Good Hope, which would afford a series of comparative observations made under circumstances the most favourable for correcting the unavoidable imperfections depending on the instruments employed and on the materials surrounding them, by a countervailing tendency to equal and opposite errors. And the Board of Longitude having on these grounds most earnestly recommended to us the establishment of such an Observatory at the Cape of Good Hope, and represented to us by their Secretary's letter of the 22d July last that the Instruments which would be required would cost, according to the best estimate they can form, about £2300, besides the expense of the Building itself, which cannot be estimated in this country, and that they would propose that the Establishment should consist of the Persons with the Salaries following, viz.

One Astronomer,	£600	per Annum
One Assistant,	£250	ditto
One Labourer,	£100	ditto

“ ‘We beg leave with all humility to represent to Your Majesty that we concur with the Board of Longitude in the expediency of erecting an Observatory at the Cape of Good Hope, and that the Establishment of Persons with the Salaries proposed appears to us to be necessary and proper, and we, therefore, most humbly propose to Your Majesty, that Your Majesty would be graciously pleased by Your Order in Council to authorise us to cause an Observatory to be erected at the Cape of Good Hope accordingly; and to direct that the Establishment thereof shall consist of the Persons with the Salaries proposed by the Board of Longitude, the said Salaries to be placed on the Ordinary Estimate of the Navy.

“ ‘And we further with all humility represent to Your Majesty that Mr. LUSHINGTON has acquainted us by his letter of the 9th of August last, that the Lords Commissioners of the Treasury concur in the expediency of the measure and in the propriety of granting Salaries of the amount above-mentioned as an inducement to men of science to accept the situations proposed to be established.’

“ His Majesty having taken the said Memorial into consideration was pleased, by and with the advice of his Privy Council, to approve of what is therein proposed, and doth hereby authorise the Lords Commissioners of the Admiralty to cause an Observatory to be erected at the Cape of Good Hope, and to order that the Establishment thereof should consist of the Persons with the Salaries therein mentioned, as proposed by the Board of Longitude; the said Salaries to be placed on the Ordinary Estimate of the Navy.

(Signed) “ JAS BULLER ”

The Rev. FEARON FALLOWS, M.A., Fellow of St. John's College, Cambridge, was appointed to the office of Astronomer at the Cape of Good Hope by Admiralty Minute of 1820, October 26.

On 1820, Nov. 28, Dr. YOUNG wrote to Mr. BARROW, recommending Mr. FAYRER as First Assistant to Mr. FALLOWS. It is stated in this letter that Mr. FALLOWS and Mr. RENNIE (whom the Admiralty had consulted in quality of engineer) had agreed on the general plan of the Observatory. Apparently the plan then sketched is the same which was ultimately adopted, the

ground-plan being in the form of the letter H; the intermediate part containing the rooms for meridional observations; the wings containing the residences of the Astronomer and his Assistants, and being surmounted by domes for equatoreals.

On 1821, February 5, Dr YOUNG transmitted to Mr. BARROW the draft of Instructions for the Astronomer at the Cape Observatory, which (as was stated in the letter) had been drawn up by the Committee of the Board of Longitude appointed for the purpose. These Instructions, however, are not to be found in the Minutes of the Board of Longitude. They are as follows.—

“Instructions

“For the Astronomer at the Cape Observatory.

“1. In the choice of the situation for the Observatory, he is to bear in mind the necessity of avoiding the sandy dust which pervades many parts of the Colony, and the advantage of having a bright star within a minute or two of the Zenith, if possible

“2. Before the completion of the Observatory, he is to employ himself in making an approximate Catalogue of the Southern Stars with the portable Transit-instrument and Equatoreal which have been provided for him; and to take measures for determining the latitude of LA CAILLE's Observatory.

“3. When the Observatory is completed, and the Instruments are fixed, he is to make his observations as much as possible of the same kind and in the same manner as the Greenwich Observations have been usually made; to employ the same stars where it can be done conveniently; and to draw up the register in the same form; in order that the whole may constitute two corresponding series capable of comparison in all their parts.

“4. He is to pay particular attention to the rediscovery of the Comet of 1819, according to the places calculated by Professor ENCKE for 1822.

“5. He is to neglect no opportunity of making any observations capable of improving the Theory of Refraction.

“6. He is to send to the Secretary of the Board of Longitude every six months a correct copy of all his observations, prepared for publication” [in order that the same may be transmitted to our Secretary].

The Board of Admiralty approved of these Instructions, and directed

that they should be sent, with the addition of the last clause, to Mr. FALLOWS

At the Meeting of the Board of Longitude on 1821, February 1, "Mr. RENNIE's sketch for the Observatory at the Cape was approved, and it was resolved that he should be desired to prepare a plan in detail." This resolution was transmitted by Dr. YOUNG to Mr. BARROW on February 29 [perhaps February 9 or 19] The Board of Admiralty gave instructions, through the Navy Board, to take proper steps for building the Observatory, but to delay active measures until the site should be selected and approved.

I do not find any official record of the time of Mr. FALLOWS' departure for the Cape; but I shall shortly be able to supply this from another source.

At the risk of some repetition, I may here insert a short Memoir of the early life of Mr. FALLOWS, extracted from the Report of the Council of the Royal Astronomical Society to the Twelfth Annual General Meeting, 10 Feb., 1832 (*Memoirs*, vol. v. page 404).

"Mr. FALLOWS is an example, and, in this country, happily, not a solitary example, of the influence which talents and character may have on the fortunes of an individual under circumstances apparently the most untoward. He was born July 4, 1789, at Cockermouth, in the County of Cumberland; and his early years were spent in following his father's occupation, that of a weaver, with no further time or opportunity for education than could be afforded by the ordinary intervals of labour. Fortunately, his father was himself a man of considerable information and studious habits, and devoted those leisure moments to the education of his child, who thus became early acquainted with the principles of arithmetic and geometry,—subjects in which he chiefly delighted. When a mere boy, a mathematical book was his constant companion at the loom, and this taste was encouraged by the kindness of many persons in the vicinity, who supplied him with books, and with such assistance in his studies as they were competent to give. His father having become parish-clerk at the neighbouring church of Bridekirk, the extraordinary acquirements of the young mathematician became known to the Rev. Mr. HERVEY, vicar of that parish; and by the advice and recommendation of this gentleman, Mr. FALLOWS was engaged as an assistant by Mr. TEMPLE, at that time head-master of Plumland School. On the death of Mr. TEMPLE, in 1808, Mr. HERVEY further exerted himself to obtain for Mr. FALLOWS the patronage of some gentlemen of fortune and interest, in

would be highly desirable that a more extended arc of the meridian should be measured near the Cape, and they beg leave to suggest, that if the Board of Longitude at large concur in this opinion, a Zenith Sector and a Theodolite, with proper chains and other apparatus for measuring a base, should be added to the list of instruments already ordered.

“III Mr. FALLOWS being in want of a good reflecting telescope, Captain KATER is requested to make inquiry respecting one which is said to be in the possession of Sir HENRY ENGLEFIELD, and which may probably be obtained. It was also resolved that inquiry be made respecting a telescope of Sir WILLIAM HERSCHEL belonging to the Observatory at Glasgow.”

The opinion of the Committee was adopted, but it was agreed that for the present it was unnecessary to provide the instruments in question, subservient to the measurement of an arc of the meridian.

At the Meeting of 4th April, 1822, letters of Mr. FALLOWS to the Admiralty were communicated, announcing the appointment of Mr. SKULLY as second assistant, which the Board recommended the Admiralty to sanction; and also stating that the proximity of a bright star to the zenith of Tiger Hill rendered it a desirable position for the Observatory.

In a letter from Mr. FALLOWS to Mr. BARROW, dated 1821, December 12, the want of a better clock than that now at the Cape, and the want of a large reflecting telescope, are urged. It appears also that Mr. FALLOWS had begun to entertain doubts on the fitness of Tiger Hill for the site of the Observatory, as it was very frequently covered with clouds.

On 1822, March 8, Mr. FALLOWS wrote more decidedly to Mr. BARROW, intimating his positive abandonment of Tiger Hill. The prevalence of sand-drift made it difficult to select a proper place, but he finally fixed on a spot between Liesbeck River and Zwait* River (as described in the map accompanying his letter). This is the place on which the existing Observatory is built. It appears that this letter was communicated to the Board of Longitude, as Dr. YOUNG, in a letter to Mr. BARROW dated 1822, July 4, conveys their approval of the change, although no mention of it is to be found in the Minutes of the Board of Longitude.

* The proper name is Salt River.

On 1822, May 30, Mr. FALLOWS stated that Mr. FAYRER was about to quit him, and suggested that Mr. SKULLY should be appointed to succeed as first assistant. This was approved at a Meeting of the Board of Longitude on November 7, and sanctioned by the Admiralty.

At the Meeting of the Board of Longitude on 1823, November 6, Mr. FALLOWS' catalogue of 273 stars, made with the small instruments, and with the unsatisfactory clock to which I have alluded, was announced. The original observations were announced at the Meeting of 1824, February 5, and were ordered to be delivered to the Royal Society for preservation. [They have lately been transferred to the Royal Observatory, Greenwich, to be preserved with the other MSS to be mentioned hereafter.]

It would appear that at this time Mr. FALLOWS' position was not very agreeable. He was residing in a hired house, of so bad a construction (as, it appears, is frequently to be found at the Cape), that on one occasion the roof and a great part of the house fell in, his family escaping injury only by accidental absence. He had only inferior instruments, and was waiting vainly for large ones. The ground which he had selected as a site for the Observatory, supposed to be Government property, was claimed by three private persons, and was only obtained by negotiation, to the extent of $2\frac{1}{6}$ acres, about 1823, July 6; but even then no plan for building was received. Finally, on 1824, July 17, he found it absolutely necessary to dismiss Mr. SKULLY, and was thus left alone.

The astronomical interests of the Cape were not, however, neglected in England. At the Meeting of the Board of Longitude, on 1822, November 7, it was also resolved, that it would be proper to purchase for Mr. FALLOWS' immediate use a clock of Mr. HARDY then finished, and of which the price was 100 guineas. This clock was announced by Mr. HARDY to the Secretary of the Admiralty as ready for shipment on 1822, December 17, and its price was paid on 1823, June 5. The bill for the mural circle was presented on 1826, September 5, that for the large transit instrument on 1826, September 22, and that for the Glasgow reflecting telescope (14 feet in focal length, and 12 inches in aperture, approved by the Board of Longitude) on 1826, November 2. I omit all notice of the small instruments which from time to time were sent to Mr. FALLOWS.

On receiving the notice of Mr. SKULLY's dismissal, it appears that the Board of Admiralty promptly consulted the Royal Society and the Astro-

Limb, apparently in the same position in which light has been seen by other observers.

In the *Philosophical Transactions* for 1824, page 457, is a "Catalogue of nearly all the principal Fixed Stars between the Zenith of Cape Town and the South Pole, reduced to the 1st of January, 1824," with a description of the instruments employed. This is the Catalogue to which allusion is made above, as having been announced at the meeting of the Board of Longitude on 1823, November 6. The small transit and the unsatisfactory clock are still, I believe, at the Cape Observatory. the altitude and azimuth instrument is at the present moment packed in cases at the Royal Observatory of Greenwich, but will shortly be delivered, with the sanction of the Admiralty, to the Observatory of the Greenwich Hospital Schools.

In the *Philosophical Transactions* for 1830, page 153, is an account of observations made with an invariable pendulum at the Cape of Good Hope. These observations were made between 1828, Nov. 23, and 1830, Jan. 22, by Mr. FALLOWS, Captain RONALD, and Mr. JOHNSON (now Radcliffe Observer at Oxford), in an out-house near the Cape Observatory.

To this list I may properly append the following singular meteorological observation, of which the original account is at the Admiralty, and which I believe has not been published. The principal part of the account was drawn up by Captain RONALD, and was inclosed by Mr. FALLOWS to the Secretary of the Admiralty.

Mr. FALLOWS to the Secretary of the Admiralty.

" Royal Observatory, Cape of Good Hope, Nov. 9, 1829

" Sir,—The inclosed document was drawn up at my request by Captain RONALD. At the moment the first explosion took place (ten in the evening,) I was writing in a room adjacent to that of the Transit, and imagined from the loudness of the report that it might be a signal of distress from some vessel in Table Bay. Shortly after, perhaps four or five minutes, for I cannot be certain, having no suspicion of what had been observed in the Transit-room, I heard a second report, but it was somewhat fainter than the former. This phenomenon has been noticed at Simon's Town, Stellenbosch, and beyond Koe-berg.*

" I have, &c

FEARON FALLOWS "

* Koe-berg is in the same range of hills as Blue-berg and Tiger-berg.

(INCLOSURE)

Captain RONALD to Mr. FALLOWS

“ Observatory, Cape of Good Hope, 20th October, 1829

“Sir,—As it may not be uninteresting perhaps to make some record of the circumstances attending the appearance of a Meteor which was observed last evening, I beg leave to convey to you the following notice: remarking that having seen it only through the open roof of the Observatory, which prevented me from following the direction it took, my report must necessarily be so far incomplete.

“At the time of the occurrence of the phenomenon in question, about 10 in the evening, I was in the Transit-room, engaged in observing the passage of a star, when a blaze of intensely vivid light was observed a little to the West of North, about the height of the Equator, and which continued for perhaps a couple of seconds

“While registering the observation, a loud report was heard nearly in the same direction, resembling that of a piece of heavy ordnance at the distance of two or three miles. The interval, between the flash and the report reaching me, must have been between the limits of $2^m\ 40^s$ and $2^m\ 45^s$, from the circumstance of my having observed the light just before the star (*g Ceti*) had come to the second wire* of the instrument, which, on referring to the transit-book, would have taken place at $23^h\ 57^m\ 47^s\cdot6$ nearly, and therefore the occurrence of the phenomenon may be safely referred to $23^h\ 57^m\ 45^s$; and as, on hearing the report, I immediately consulted the Sidereal Clock, which indicated $0^h\ 01^m\ 30^s$, I think that the error in assuming the elapsed time as above cannot be supposed to amount to five seconds.

“There was little peculiar in the state of the weather or atmosphere; the day had been rather more than usually cool, the highest temperature being 63° Fahrenheit, the wind from the south, and moderate, with slight passing showers. The evening was nearly clear, with a light air from the south-west, atmosphere rather dry; the barometer standing at $30^{\text{in}}\cdot20$, and the thermometer at 52° , and both were observed to rise suddenly after the explosion, the barometer by $0^{\text{in}}\ 01$, and the thermometer by $0^{\circ}\cdot1$, though they regained their original position in a short time afterwards.

“ I have, &c

W. RONALD

* The transit of *g Ceti* (*2 Ceti*) over the second wire, on this day, is blank, and the word “meteor” is written in the margin. The first and third wires are $23^h\ 57^m\ 27^s\cdot9$ and $23^h\ 58^m\ 7^s\cdot4$.

“By referring to my Meteorological Journal, it appears that a meteor of somewhat similar appearance was noticed in Cape Town early on the morning of the 6th November last year.—W. R.”

Of the history of the Manuscripts of Mr. FALLOWS' Observations since their arrival in England I am unable to give a complete account. I am aware that at the request of the Admiralty they were examined successively by two gentlemen of well-known astronomical ability, in reference to the publication of their results, but I am not aware of the circumstances which prevented the reduction of the results from being then completed.

The Manuscripts were placed in my hands in the spring of 1846, and on 1846, June 9, I wrote to the Admiralty, undertaking to superintend the reductions, and received from them the necessary powers on 1846, June 12.

The work has been carried on at intervals by the Computers usually employed on the Lunar Reductions, or on the supplementary computations of the Royal Observatory.

G. B. AIRY.

Royal Observatory, Greenwich,
1849, October 23.

EXPLANATION OF THE REDUCTIONS

Results in Right Ascension.

The transit observations commence on 1829, April 11, and terminate on 1831, March 30. Of these there are three copies, viz :

First. A copy on oiled tissue paper in three books, much dilapidated, including, however, only the observations from 1829, April 11, to 1831, February 17.

Secondly. A copy on oiled tissue paper in two books, much dilapidated, including all the observations. In the first cover is written, in handwriting not Mr. FALLOWS', "3d or clean copy." This is the copy which has been used in all the reductions made under my direction.

Thirdly. A copy on strong writing paper, including all the observations, and signed "JAS. ROBERTSON."

The first and second copies are written by the use of carbonaceous paper and a hard style, but they have been written independently, sometimes in different handwritings. In both copies the carbonaceous paper has been sometimes placed on the upper surface of the tissue paper, and sometimes on the lower surface. I believe that the mechanical copies of both are preserved at the Cape Observatory.

The transit instrument is the same which is still mounted at the Cape Observatory, and which is described by Mr. MACLEAR in the *Cape Observations*, 1834. Its focal length is 10 feet, and the aperture of its object-glass 4.9 inches: it is the work of Mr. DOLLOND, and appears to be in every respect an admirable instrument. It is furnished with 7 wires in the field of view, and these appear to have remained in the same state to 1834. Mr. FALLOWS, however, observed only on 5 wires, and his books are ruled only for 5 wires. It will, however, be seen hereafter, that, although he always intended to observe the transits on the 5 middle wires, he has occasionally (by a mistake which he has not himself detected) observed the transit on one of the extreme wires.

The only alterations which it has been necessary to make in the seconds of the recorded transits are the following —

- 1829, April 14, θ^2 *Argûs*, the III observed wire is increased 1^s
- April 15, δ *Argûs*, all the wires are diminished 1^s
- May 1, κ *Argûs*, the II observed wire is diminished 1^s
- July 8, ι *Centauri*, the III observed wire is increased 2^s
- Aug 28, γ *Pavonis*, the V observed wire is diminished 1^s
- Sept 14, β *Indi*, the I. observed wire is increased 6^s
- the IV observed wire is increased 5^s.
- 1830, July 14, Sun 1 L, the III. observed wire is increased 2^s
- Oct 29, Sun 1 L, the V observed wire is diminished 10^s
- Dec 30, Sun 2 L, the I observed wire is increased 1^s

Alterations of minutes have not been specially registered.

On 1829, September 23, ζ *Canis Majoris*, and β *Canis Majoris*, differing 10^o in polar distance, are both observed, though the interval of time between the last wire of ζ *Canis* and the first of β *Canis* is only 3^s.

The following observations are rejected. —

- 1829, April 13, α^2 *Centauri*.
- August 28, δ *Capricorni*.
- 1830, March 19, σ *Sagittarii*.

*Results of the Observations made by the Rev. F. FALLOWS,*1830, July 7, α *Librae*August 1, 25 *Clypeus Sobieski*Oct 21, a star taken by mistake for *Vesta*, and insufficiently defined in
north polar distance

Some small stars observed on single wires at the beginning of 1830

Two stars on 1830, August 4, for which there are no means of identification

When transits were observed on five wires, Mr. FALLOWS has always given the mean in a column entitled "Reductions," but no reduction is given for the imperfect transits. The reductions of the complete transits have been examined under my direction, those of the incomplete transits have been supplied in the following manner. In one of Mr. FALLOWS' books (principally appropriated to the adjustments of the transit instrument and the clock), sufficient information as to the east or west position of the illuminated end of the transit was obtained. Then from 51 observations of β *Hydri* above the pole, and 36 observations below, the intervals of wires for β *Hydri* were found, and were reduced to the values corresponding to an equatoreal star. The results were as follows, the illuminated end of the axis being east. Mr. MACLEAR's corrections are taken from the introduction to the *Cape Observations*, 1834.

Correction to the transit over each wire, to reduce it to the mean of wires, Illuminated End East.

MACLEAR'S Numeration	FALLOWS' Numeration	Correction	MACLEAR'S Correction
1		s	+55 962
2	I	+37 309	+37 349
3	II	+18 656	+18 671
4	III	+ 0 004	+ 0 008
5	IV	-18 655	-18 635
6	V	-37 313	-37 364
7			-55 991

The numbers in the first column of corrections have always been used in the reductions of imperfect transits, except when transits on the first or seventh wire have been inadvertently observed, in which instances the numbers of the second column have been used.

The following are the instances of observation of the first or seventh wire :—

1829, April 14, θ *Centauri* The wires, in the order of observation, are 3, 4, 5, 6, 7

April 14, α^2 *Centauri* The wires are 4, 5, 6, 7

Sept 14, ϵ *Grus*. The wires are 1, 2, 3, 4, 5

And where the intervals between two neighbouring stars have been observed, the wires used have commonly been the first and the seventh.

After deducing from all the wires observed the transit over the mean of the five wires, the next step was to examine into the value of the error of collimation of that mean, or (which is sensibly the same thing) of the error of collimation of the middle wire. In Mr. FALLOWS' adjustment-book the following remarks are found:—

“1829, June 13, at nearly 5 o'clock P.M. Reversed the transit several times, and found the collimation so nearly correct that it was considered advisable not to change or alter the collimation screws.

“1829, July 3. The collimation was found correct.

“1829, August 4, 4 P.M. Reversed the instrument; examined the collimation, which proved almost as nearly correct as possible. The minutest adjustment took place.

“1829, Sept. 1. Reversed the transit. . . . The collimation was found very nearly correct by a mark on the upper part of the pillar.

“1829, Dec. 31. The collimation correct by reversion with the meridian mark. The centre wire is, if anything, a *little* to the right hand.

“1830, March 2 and 3. The transit reversed; collimation correct.

“1830, July 9. Examined the pivots of the transit. When the instrument was horizontal, no error. A slight error of $0''.2$ appeared when the instrument was about 45° altitude, the object-glass being toward the south. This minute quantity ought *perhaps* to be attributed to the level itself. No error could be perceived when the object end was about 45° to the north. In fact, the discrepancy $0''.2$ might arise from the observatory door being suddenly opened at that time. I therefore did not deem it prudent to grind the pivots.

“1830, July 9 and 10. Collimated the transit with the greatest care by our north meridian mark, and left the centre wire exactly bisecting the dot.

“1831, Jan. 16. The collimation by the N. and S. marks was quite correct.”

It is evident from these notes that Mr. FALLOWS was very careful in examining the error of collimation and the forms of the pivots, and also that the instrument was very firm; and there cannot be the smallest doubt on the propriety of reducing the observations in the way in which he had intended to reduce them himself, namely, by assuming that the error of collimation was insensible, and that the pivots were truly circular.

The next element of reduction is the error of horizontality of the axis of the transit. Notices of the application of the level are found on the following days.—

1829, April 28, 29, May 25, June 13, 15, July 3, August 3, 4, Sept. 1, Nov 18, Dec. 31, 1830, March 2 and 3, April 12, May 5, July 9, 10; 1831, Jan. 16, 19.

On 1831, Jan. 16, the level was applied before and after reversing the transit, the results are sensibly the same, shewing that there was no sensible difference between the pivots.

Mr FALLOWS had deduced, from these applications of the level, the level-error of the transit, and had (in a subsequent stage of the reductions) applied the corresponding corrections to the transits of the stars, as far as 1830, March 31. In order to examine the accuracy of these corrections, the names of the stars were placed by me in the order of south polar distance, and opposite to them were placed, in separate columns, the corrections applied by Mr. FALLOWS during separate periods through each of which one constant level-error might be supposed to exist. The order of arrangement which I have described enabled me to discover a few errors. When these were corrected, M^r. FALLOWS' numbers were used as far as 1830, March 31. After this time the error of level is generally insensible (the discordance of results obtained on the same day considerably exceeding the mean of the results), and therefore no further attempt at correction for this error is made.

The next element of reduction is the azimuthal error of the transit. The book of adjustments to which I have alluded contains occasional investigations of the amount of this error, principally from observations of β *Hydri*, but sometimes from other stars, and occasional notices of the shifting of the meridian mark. The last notice is on 1830, July 13. "Adjusted the dot on the south meridian mark, so as to be accurately bisected by the centie wire of the transit." I imagine that, at this time, Mr. FALLOWS was perfectly satisfied with the position of the instrument, and with the position of the mark then fixed by it, and that he afterwards adjusted the transit in all cases upon the dot so fixed, and assumed it to have no azimuthal error. Up to 1830, March 31, corrections for azimuthal error are applied; these were examined under my direction in the same manner as those for level-correction, and some errors were found. After that time I have supposed that (from the evidence given by the few observations of β *Hydri*, and from the subsequent fixation of the meridian mark) the azimuthal error was zero; at

any rate, it is impossible to use any satisfactory astronomical determination of its amount, because the observations of β *Hydræ* cease in the spring of 1830.

These corrections being applied, the true clock time of transit over the meridian was found

The next step was, to investigate the clock-errors from comparison of clock-transits with tabular right ascensions of clock-stars. Mr. FALLOWS had investigated and applied the clock-errors as far as 1830, March 31, and had even made considerable progress in reducing the results to the form of Ledger, the results for each star being collected together. His principle was, to use a single star for the determination of clock-error for the correction of each transit. His only clock-stars were α *Orionis*, *Procyon*, α *Aquilæ*, and in a small number of instances, *Spica* and *Antares*. In estimating the propriety of this method of proceeding, it is to be remarked, that no good catalogue of stars existed at that time of a later epoch than 1800, and that it would have been difficult for Mr. FALLOWS to adopt any other course which would enable him with facility to correct the results for the errors which might probably exist in the assumed fundamental places. But I think it perfectly certain that if Mr. FALLOWS had lived to reduce his observations at the present time, he would have availed himself of some of the accurate catalogues which have been published since 1830. In the full belief, therefore, that I was doing only what Mr. FALLOWS himself would have done, I rejected his clock-reductions entirely, and investigated anew the clock-errors, adopting as basis the places of the *Tabulæ Regiomontanæ*.

The method which I adopted was nearly the same as that used by me in the Planetary and Lunar Reductions. All the stars of the *Tabulæ Regiomontanæ* which could conveniently be combined in one group were used for the formation of the clock-errors. Thus, on some days the adopted clock-error was the mean of the clock-errors given by ten or more stars. If only one or none of the stars of the *Tabulæ Regiomontanæ* had been observed, small stars were selected which were to be found both in the catalogue of BRADLEY (*Fundamenta Astronomiæ*) and also in that of POND or PIAZZI, and they were used as clock-stars. It was evidently necessary, in general, to investigate the proper motion of these stars, that was done by bringing up the right ascension of BRADLEY to the epoch of POND or PIAZZI (as the case might be), using the same elements of precession as those which were to be

used in afterwards computing the star's apparent place, and comparing the right ascension so brought up with that of POND or PIAZZI. About two-thirds of the small stars thus used were found in POND's catalogue; and POND's places were then used in preference to PIAZZI's. With these proper motions and the precessions of the *Fundamenta*, the stars' mean right ascensions were formed; and the variable corrections were computed by the use of the log A, log B, &c., given in the *Tabulæ Regiomontanæ*, and quantities equivalent to the log *c*, log *d*, log *a*, log *b*, of the Royal Astronomical Society's Catalogue. The whole number of right ascensions of the Fundamental Stars of the *Tabulæ Regiomontanæ* used for clock-error is about 660, and that of small stars about 400.

The comparison of these tabular right ascensions with the true clock-time of transit gave the clock-error as shewn by each individual star. The clock-errors were divided into 352 groups, each group usually corresponding to one day's observations: the mean of the clock-errors of each group was held to be a clock-error corresponding to the mean of the times of transit, the comparison of successive means gave an apparent rate of the clock between successive groups; and from these a rate was adopted for each group. The clock-rate was generally steady on two occasions the change between two successive days amounted to nearly 0^s.4, but I believe that on no other occasion did it reach half that quantity. A fictitious clock-error was then formed for 0^h sidereal, in the same manner as in the *Greenwich Observations*.

The clock-error at 0^h and the proportional part of the clock-rate were then applied to every true clock-time of transit, and thus an apparent right ascension as given by observation was formed. But no result was retained for a clock-star, unless there were at least three clock-stars in the group.

From these apparent right ascensions of stars, the mean right ascensions for the beginning of the year of observation are found by applying backwards the star-corrections. For the principal stars of the *Tabulæ Regiomontanæ*, these are found by subtracting the mean right ascension from the apparent right ascension. For the other stars a mixed course was pursued. Mr. FALLOWS had computed star-corrections for nearly all the first-observed stars, as far for the most part as 1830, March 31: the results only, however, are given in the papers which have come into my hands. It was necessary to verify these, and also to alter them, if the difference was sensible, to what they would have been if computed on the elements of the *Tabulæ Regio-*

montanæ. The plan, therefore, pursued by me was, to compute (by the log A, B, C, D of the *Tabulæ Regiomontanæ*, and log *c, d, a, b* of the Royal Astronomical Society's Catalogue, or equivalent formulæ) the star-correction for one, two, or three days, in each group of results for any one star. The difference between these corrections and Mr. FALLOWS' corrections was taken, and then it was very easy to form differences for all the other days of observation through the group of results; which differences, being applied to Mr. FALLOWS' corrections, gave the corrections that would have been obtained by immediate use of the *Tabulæ Regiomontanæ*. For all observations in which the corrections had not been computed at all by Mr. FALLOWS, the corrections were computed independently for every separate observation.

The mean places of the stars from observation having been thus found for the beginning of the year of observation, those which were referred to 1829 or 1831 were reduced by application of one year's precession to 1830; the same elements of precession being used as those adopted in the catalogue, to be hereafter explained. And thus the Ledger of Results in Right Ascension for every separate observation of the stars was completed.

At the end of these results of absolute right ascensions are placed some results of difference of right ascension, in the form in which they are given by Mr. FALLOWS, and requiring no further reduction.

The formation of the right ascensions of the sun, moon, and planets, requires no further explanation, except what will be with greater propriety connected with the tables of their places in right ascension and north polar distance.

Results in North Polar Distance.

Of the circle observations there is but one copy, in two books, on oiled tissue paper, commencing 1830, April 2, and terminating 1831, March 30. The first book is headed "Extracts from the Mural-Circle Book of the Royal Observatory, Cape of Good Hope;" but I have no reason to think that any observations were made in series, other than those contained in these papers. A book of adjustment contains numerous readings of the microscopes from 1829, Feb. 20, to 1830, March 24, but they are experimental only, excepting on three days intended to fix the place of a comet.

Argûs α , continued		26 Geminorum		9 Canis Majoris α , cont		{ Piazzî VI — 270 } B A C 2265 }	
1829 May 2	6 ^h 20 ^m 10 ^s 61	1830 Jan 8	6 ^h 32 ^m 30 ^s 16	1829 July 13	6 ^h 37 ^m 39 ^s 29	1830 Jan 8	6 ^h 46 ^m 23 ^s 12
11	10 73	Feb 4	30 44	14	39 31	Dec 29	23 13
12	10 53	Argûs ν		15	39 23	{ Piazzî VI — 294 } B A C 2280 }	
13	10 63			16	39 25		
14	10 70	1829 April 27	6 32 33 70	20	39 38	1830 Jan 8	6 50 4 57
19	10 53	May 2	33 56	21	39 24	21 Canis Majoris α	
21	10 74	11	33 58	22	39 24		
22	10 43	12	33 43	Aug 10	39 45	1829 April 15	6 51 56 81
June 18	10 19	13	33 59	12	39 30	17	56 97
Sept 13	10 73	19	33 57	14	39 30	21	56 63
14	10 43	21	33 63	17	39 32	27	56 77
17	10 91	Sept 13	33 56	21	39 31	May 12	56 61
24	10 67	16	33 67	23	39 18	13	56 65
Nov 26	10 25	21	33 68	24	39 20	14	56 71
27	10 42	Sept 16	• 33 67	27	39 38	19	56 67
Dec 3	10 52	21	33 68	Nov 25	39 24	22	56 69
11	11 02	Nov 25	33 27	26	39 20	June 15	56 93
1830 Feb 25	10 67	26	33 47	Dec 3	39 27	July 21	56 55
1831 Jan 26	10 49	Dec 3	33 43	1830 Feb 23	39 42	22	56 60
27	10 42	1830 Feb 23	33 68	25	39 35	Aug 10	56 73
31	10 56	25	33 57	1831 Feb 5	39 26	12	56 77
Feb 2	10 25	26	33 62	33 Geminorum		Sept 13	56 58
3	10 59	9 Canis Majoris α		1829 Dec. 11	6 40 2 26	16	56 73
4	10 12	1829 April 13	6 37 39 22	13 Canis Majoris α .		22	56 62
5	10 52	15	39 43			23	56 72
11	10 61	17	39 16	1829 July 21	6 43 29 34	24	56 66
12	10 66	20	39 37	22	29 38	Nov 25	56 58
13	10 32	21	39 30	Sept 13	29 24	Dec 3	56 62
{ Piazzî VI — 135 } B A C 2116 }		27	39 20	16	29 46	1830 Feb 4	56 64
1830 Jan 7	6 22 23 03	May 2	39 27	Nov. 25	29 34	25	56 80
Feb 4	23 30	11	39 21	Dec 3	29 36	26	56 81
Dec 29	23 29	12	39 20	22 Canis Majoris		1829 July 21	
24 Geminorum γ		13	39 34				
1830 Feb 4		14	39 34	1830 Feb. 23	29 45	22	6 54 56 79
		19	39 11	25	29 60		56 69
		21	39 24				
		22	39 31				
		June 15	39 54				
		18	39 37				
		July 12	39 28				

22 Canis Majoris, cont		25 Canis Majoris δ, cont		31 Canis Majoris η, cont		10 Canis Minoris α	
1829 Aug 10	6 ^h 54 ^m 56 ^s 75	1830 Feb 4	7 ^h 1 ^m 28 ^s 73	1829 May 12	7 ^h 17 ^m 22 ^s 23	1829 April 11	7 ^h 30 ^m 23 ^s 77
12	56 73	23	28 75	13	22 27	17	23 79
Sept 13	56 76	25	28 95	14	22 25	24	24 05
16	56 79	26	28 87	June 15	22 41	30	23 93
21	56 64	54 Geminorum λ.		Aug 10	22 32	May 1	23 89
1830		1829		12	22 36	2	23 81
Feb 23	57 08	Nov 14	7 8 19 12	Sept 13	22 52	11	23 76
25	56 95	Dec 11	19 20	16	22 65	12	23 75
26	56 98	1830		17	22 74	13	23 81
23 Canis Majoris γ		Feb 4	19 15	Nov 25	22 14	14	23 80
1829		5	19 06	Dec 3	22 17	15	23 76
Nov 25	6 56 3 94	Argûs π		1830		19	23 82
Dec 3	3 94	1829		Feb 23	22 31	25	23 82
1830		Apr 17	7 11 8 33	26	22 25	June 18	24 06
Feb. 4	4 05	21	8 31	Argûs σ		Aug 10	23 81
45 Geminorum		May 12	8 22	1829		12	23 80
1830		13	8 33	Sept 13	7 23 50 22	Sept. 13	23 87
Jan 8	6 58 36 65	14	8 20	16	50 24	15	23 88
* N P D. 71° 27'		Aug 10	8 36	Nov 25	50 01	17	24 01
1830		12	8 35	Dec. 3	50 08	19	23 92
Mar 31	6 58 42 09	Sept 13	8 27	1830		23	23 87
25 Canis Majoris δ		16	8 33	Feb 4	50 35	24	23 91
1829		17	8 50	23	50 27	25	23 85
July 22	7 1 28 70	Nov 25	8 29	26	50 30	26	23 86
Sept. 13	28 66	Dec 3	8 24	27	50 17	27	23 67
16	28 81	1830		68 Geminorum		Oct 1	23 85
17	28 90	Feb 26	8 36	1829		2	23 87
23	28 79	1831		Nov 14	7 23 53 93	5	23 83
24	28 77	Feb 5	8 04	1830		Nov 14	23 86
Nov 25	28 29	12	8 42	Feb. 5	53 75	25	23 87
Dec 3	28 73	13	8 22	Mar. 31	53 98	Dec 3	23 84
31 Canis Majoris η		17	8 26	74 Geminorum f		1830	
1829.		31 Canis Majoris η		1830		Feb 4	23 90
Apr 17	7 17 22 28	1829.		Feb. 5	7 29 38 89	23	24 05
21	22 25	Apr 17	7 17 22 28	74 Geminorum f		25	23 92
		21	22 25	1830		May 6	23 83
				Feb. 5	7 29 38 89	9	23 84
						11	23 76
						Aug. 11	23 82
						12	23 85
						Sept. 15	23 92
						21	24 00
						1831	
						Feb 13	23 75

10 Canis Minoris α , cont			Argûs χ , continued			Argûs γ , continued			29 Cancri.		
1831		^h ^m ^s	1829		^h ^m ^s	1829		^h ^m ^s	1830		^h ^m ^s
Mar 7	7	30 23 79	May 1	7	52 27 18	May 13	8	4 17 54	April 1	8	19 7 40
15		23 83	12		27 16	14		17 40	Volantis β		
16		23 90	13		27 00	15		17 48	1830		
17		23 91	14		27 09	19		17 42	Feb. 26	8	23 51 49
21		23 82	15		27 06	22		17 36	{ Mali b Pixidis Nauticæ β }		
22		23 83	25		27 06	Nov 25 17 32			1830		
23		23 98	Nov 25 27 07			1830.			Feb 23	8	33 27 01
26		23 93	1830			Feb 4		17 42	25		26 95
27		23 90	Feb 4		27 20	23		17 56	26		27 08
28		23 96	23		27 24	25		17 47	27		26 92
29		23 93	25		27 07	26		17 37	{ Piazzî VIII—148 B A C. 2941 }		
Puppis ϵ .			26		27 02	Puppis γ .			1830		
1830			1831			1830			Feb 23	8	34 4 80
Feb 25	7	39 11 88	Feb 17		26 99	Argûs ζ			Feb 4		
27		11 86	Argûs ζ			Feb 23	8	12 11 73	{ Mali α Pixidis Nauticæ α }		
Puppis P			1829			25		11 60	1830		
1830			April 17	7	57 36 69	26		11 72	Feb 23	8	36 45 90
Feb 23	7	44 3 58	20		36 71	27		11 72	25		45 78
25		3 58	21		36 51	Argûs α .			26		45 91
26		3 50	24		36 46	1829			27		45 70
1 Cancri.			May 1		36 56	April 11	8	19 1 02	50 Cancri A ²		
1830			12		36 56	13		0 88	1830		
Feb 5	7	47 19 59	13		36 61	16		0 73	Feb 23	8	37 36 45
{ Piazzî VII—261 B A C 2649 }			14		36 47	20		0 72	Argûs δ		
1830			15		36 49	21		0 73	1829		
Dec. 30	7	48 49 04	22		36 60	24		0 85	April 13	8	40 0 27
5 Cancri			25		36 58	May 1 0 71			14		0 44
1830			1830			12		0 94	15		0 37
Jan 9	7	51 48 09	Feb 4		36 54	14		0 79	16		0 39
April 1		48 29	23		36 70	15		0 70	17		0 27
Argûs χ			25		36 60	Nov. 25 0 77			20		0 54
1829			Argûs γ			1830			21		0 47
April 21	7	52 27 13	1829.			Feb 4		0 82			
24		27 10	April 17	8	4 17 43	23		0 80			
			20		17 38	25		0 74			
			21		17 32	26		0 71			
			24		17 42	27		0 66			
			May 12		17 65	1831.					
						Feb. 17		0 74			

Argus δ, continued.			Argus λ, continued			Argus ζ			Argus υ, continued		
1829.			1829			1829			1829		
April 24	8 ^h	40 ^m 05 ^s 2	May 1	9 ^h 1 ^m	44 94	April 14	9 16	50 95	May 1	9 42	51 03
30		016	2		44 84	20		51 10	2		50 62
May 1		072	12		44 79	21		51 08	11		50 92
14		033	14		44 88	24		51 03	12		51 13
Nov. 25		011	15		44 77	30		51 35	13		50 98
1830.			Nov 25		44 67	May 1		50 96	14		50 80
Feb. 1		021	1830			2		51 09	15		50 82
23		024	Feb 25		44 78	11		50 91	19		50 76
26		043				14		50 84	22		50 99
1831.			{Piazzi IX—35}			22		51 04	29 Leonis π		
Feb. 17		049	{B A C 3164.}			25		51 07	1830		
65 Canceri α			1830			30 Hydræ α.			Feb 8		9 51 13 41
1830.			April 2	9 8	37 57	1829			31 Leonis A		
Mar. 6	8 49	10 84	Argus β			April 13	9 19	13 97	1830		
Cannæ δ ¹			1829			May 11		13 84	Feb 8	9 58	52 56
1830.			April 11	9 11	18 50	12		13 93	April 3		52 58
Feb. 4	8 52	48 32	14		18 08	14		13 82	32 Leonis α		
26		48 40	16		17 98	15		13 88	1829		
Cannæ δ ²			20		17 83	19		14 12	April 11	9 59	18 56
1830.			21		17 67	25		13 95	May 11		18 72
Feb. 4	8 55	13 50	24		17 59	1830			1830.		
76 Canceri α			30		17 97	Feb 4		14 02	Mar 6		18 58
1830.			May 1		17 86	25		14 13	16 Sextantis.		
Mar. 6	8 58	31 89	2		17 78	Mar 22		14 06	1830		
Argus λ.			11		18 36	23		13 87	April 4	10 0	19 88
1829.			12		17 81	6 Leonis h			{Piazzi X—51.}		
April 13	9 1	44 91	14		17 83	1830.			{B A C 3538}		
14		44 84	15		17 68	April 3	9 22	50 61	1830		
16		44 79	25		17 88	14 Leonis α			May 1	10 13	15 96
20		45 10	Argus ι			1830			43 Leonis.		
21		44 83	1829			April 3	9 32	4 08	1830.		
24		44 79	May 19	9 12	32 00	Argus υ			April 4	10 14	6 31
30		44 79	{Mali h.			1829					
			{Pixedis Nauticæ δ.}			April 20	9 42	51 02			
			1830			21		50 85			
			Feb 25	9 13	58 48	24		50 97			
			26		58 37	29		51 10			
			Mar 26		58 20	30		50 90			

44 Leonis		Argûs μ		11 Crateris β , continued.		Centauri λ	
1830 Mar 7	10 16 17 39	1829 April 29	10 39 28 97	1829 May 15	11 3 18 22	1829 April 20	11 27 58 92
32 Sextantis		May 2	28 55	22	18 31	21	58 99
1830 Mar 8		25	28 55	25	18 25	22	59 13
49 Leonis		7 Crateris α		June 18	18 21	24	59 03
1830 F b 8		1829 April 20	10 51 29 78	75 Leonis.		29	59 15
35 Sextantis		21	29 82	1830 Mar 9		30	58 88
1830 Mar 8		24	29 61	Centauri π		May 1	59 04
Argûs δ .		29	30 09	1829 April 29		11	58 84
1829 April 13		30	29 80	11 13 17 15		12	58 96
14		May 1	29 64	30		14	59 09
16		2	29 74	May 2		15	58 86
21		11	29 80	12		25	58 76
29		14	29 96	14		June 15	58 33
30		15	29 92	15		18	58 09
May 1		22	29 77	16 92		94 Leonis β	
2		25	29 93	17 10		1829 April 11	11 40 22 87
11		June 18	29 73	17 09		{Piazzi XI—172} B A C 4015}	
12		59 Leonis c		16 88		1829 April 29	
14		1830 Mar 8	10 51 55 92	16 94		30	
22		April 4	55 70	16 87		May 1	
25		65 Leonis p^3		16 99		2	
37 Sextantis		1830 Feb 9	10 58 13 80	June 15		11	
1830 May 1		Mar 9	13 88	18		12	
Argûs η		April 5	13 79	16 64		14	
1829 April 11		11 Crateris β		16 36		15	
20		1829 April 30	11 3 18 38	79 Leonis		June 15	
24		May 1	18 36	1830 Mar 9		18	
		2	18 34	11 15 18 91		20 57	
		12	18 65	80 Leonis.		20 32	
		14	18 34	1830 Feb 9		May 1	
		{Piazzi XI—77} B A C 3901.		11 17 5 70		2	
		{Piazzi XI—213} B A C. 4054.		11 19 12 42		11	
		1830 Mar. 10		April 6		12	
		11 52 19 64				14	
						15	
						June 15	
						18	
						20 17	
						20 06	

{Piazzl XI—230} B A C 4077 }		Crucis δ , continued		Crucis α		{Piazzl XII—143} B A C 4255 }		
1830 Mar 10 April 6	^h ^m ^s 11 57 17 81 17 59	1829 April 23 24 29 30 May 1 June 18	^h ^m ^s 12 6 10 08 10 12 10 34 10 10 10 11 9 25	1829 Oct 27	SP	^h ^m ^s 12 17 12 66	1830 April 7 May 4	^h ^m ^s 12 29 59 38 58 96
B A C 4085				7 Corvi δ		Centauri γ		
1829 April 24 29 May 1 2 5 7 11 12 June 15 18	^h ^m ^s 11 59 19 23 19 34 19 19 19 12 19 30 19 12 19 37 19 28 18 76 18 76	4 Corvi γ .		1829 May 22		^h ^m ^s 12 21 4 74	1829 April 23 24 28 29 30 May 1 2 5 7 8 11 12 14 15 22 June 15	^h ^m ^s 12 32 10 78 10 74 10 71 10 99 10 79 10 85 10 79 10 95 10 87 10 71 11 03 11 06 11 09 10 90 10 86 10 55
Centauri δ		Chamaeleontis β		{Piazzl XII—111} B A C 4225 }		29 Virginis γ'		
1829 April 13 14 20 21 23 24 29 30 May 1 2 5 7 11 12 14 15 June 15 18	^h ^m ^s 11 59 35 23 35 05 34 99 34 83 35 35 35 12 35 35 35 22 35 12 35 01 35 21 35 19 35 24 35 33 35 23 35 07 34 67 34 45	1829 Aug 26 28 Sept. 2 3 6 7 7 12 13	SP SP SP SP • SP SP SP	^h ^m ^s 12 8 33 05 33 00 32 95 32 63 32 80 33 50 32 74 32 48 32 86	1830 April 7	^h ^m ^s 12 22 54 67	1830 Mar 10	^h ^m ^s 12 33 2 97
Crucis δ		13 Virginis		9 Corvi β		Crucis β		
1829 April 13 14 16 20 21	^h ^m ^s 12 6 10 19 10 08 9 78 10 03 9 86	1830 May 3	^h ^m ^s 12 9 57 46	{Piazzl XII—65} B A C 4172 }		1829 April 13 14 16 20 21 22 June 15 17 18		^h ^m ^s 12 37 51 20 51 05 50 88 50 93 50 85 51 04 50 65 51 01 50 79 51 10 50 92 51 17 51 27 51 34 50 96 51 09 50 46
		1830 April 7	^h ^m ^s 12 14 31 48					

{Piazzi XII—183 } B. A C 4294 }			* N P D. 125° 49'±			67 Virginis α, continued			Centauri ζ, continued.					
1830. April 7 12 ^h 38 ^m 46 ^s 72			1829 May 1 13 ^h 12 ^m 2 ^s 26			1831 Mar 7 13 ^h 16 ^m 14 ^s 76 15 14 85 16 14 94 17 14 84 22 14 58 26 14 78			1829 May 12 13 ^h 44 ^m 58 ^s 89 14 58 87 15 58 71 22 58 86 June 18 58 41					
45 Hydræ ψ			67 Virginis α.			77 Virginis			{Piazzi XIII—238 } B A C 4647. }					
1829. April 24 12 59 54 94 29 55 10 30 54 96 May 1 54 88 2 54 85 11 55 05 12 55 07 14 55 02 15 54 80 25 54 85 June 15 54 91 17 54 78 18 54 69 July 8 54 75			1829 April 13 13 16 14 74 14 14 91 20 14 88 21 15 00 24 14 94 29 15 09 30 14 92 May 1 14 92 2 14 81 11 15 11 12 15 13 14 15 04 15 15 04 22 14 84 25 14 85 June 15 14 91 17 14 95 18 14 64 July 7 14 81 8 15 04 9 14 88 13 14 83 14 14 86 Sept 14 14 75 15 14 82 17 14 83 20 14 86 24 14 86 26 14 88 27 14 82 Oct 1 14 84 2 14 80 1830 Sept 15 14 89 16 14 80 19 14 92 21 14 69 22 14 81 29 14 70 Oct 1 14 75			1830 April 8 13 24 32 25			Centauri ε 1829 April 13 13 29 10 35 14 10 50 20 10 36 21 10 17 23 10 25 24 10 38 28 10 37 29 10 51 30 10 26 May 1 10 39 2 10 46 11 10 74 14 10 53 15 10 39 22 10 33 June 18 9 90			1830 May 5 13 46 3 82		
Centauri ι			Centauri β			Centauri ζ			{Piazzi XIII—270 } B A C 4666 }					
1829 April 13 13 11 4 23 14 4 33 20 4 15 21 4 09 23 4 32 24 4 31 28 4 17 29 4 41 30 4 14 May 2 4 12 11 4 42 12 4 46 14 4 49 25 4 22 June 15 3 99 17 3 86 18 3 98 July 7 4 04 8 4 08 9 3 99 13 4 23			1829. April 13 13 51 54 43 14 54 70 20 54 22 21 54 07 23 54 45 24 54 29 28 54 04 29 54 44 30 54 25 May 1 54 32 2 54 14 11 54 50 12 54 55 14 54 45 15 54 25			{Piazzi XIII—287. } B A C 4680. }			1830 May 6 13 55 21 81					

5 Centauri δ		Centauri η .		9 Libræ α , continued		Trianguli Aust γ , cont	
1829 April 13	13 56 42 50	1829 April 14	14 24 44 87	1829 April 20	14 41 29 20	1829 May 1	15 3 10 21
14	42 52	20	44 94	21	29 17	11	10 46
20	42 43	21	44 89	24	29 32	12	10 22
21	42 42	23	44 74	29	29 17	14	10 19
24	42 38	24	44 91	30	29 27	June 15	9 22
29	42 65	30	44 93	May 1	29 36	18	9 23
30	42 51	May 1	44 86	11	29 45	27 Libræ β	
May 1	42 54	11	45 35	12	29 60		
2	42 41	12	45 17	14	29 41	1829 April 21	
11	42 71	14	45 20	25	29 28	24	52 13
12	42 71	25	44 93	June 15	29 09	29	52 19
June 18	42 33	June 15	44 64	17	29 28	May 1	52 37
July 6	42 41	18	44 63	18	29 29	11	52 42
7	42 32	Centauri α^2		July 7	29 28	12	52 47
8	42 58			8	29 22	14	52 37
9	42 38	1829		9	29 25	June 15	52 32
13	42 41	April 14	14 28 7 74	11	29 38	17	52 26
14	42 34	21	7 48	13	29 37	18	52 13
15	42 38	23	7 62	20 Libræ		July 7	52 03
16	42 29	24	7 56			8	52 13
100 Virginis λ .		30	7 49	1829		9	52 06
		May 11	7 72	May 1	14 54 8 40	11	51 92
1829		12	7 98	11	8 48	13	52 12
April 24	14 9 55 56	14	7 72	12	8 58	14	52 10
29	55 76	25	7 37	14	8 51	15	52 12
30	55 47	June 15	6 70	25	8 39	16	51 98
May 1	55 50	18	6 77	June 15	8 09	Lupi γ	
11	55 64	Lupi α .		17	8 16		
12	55 61			18	8 17	1829 April 13	
14	55 76	1829		July 6	8 25	14	50 56
25	55 42	April 29	14 30 39 88	7	8 10	24	50 44
June 18	55 51	May 1	40 13	8	8 19	29	50 54
July 6	55 42	12	40 22	9	8 24	30	50 44
7	55 37	14	40 23	11	8 22	May 1	50 62
8	55 36	25	40 02	13	8 30	11	50 69
9	55 35	June 15	39 39	Trianguli Australis γ		12	50 91
13	55 51	18	39 73			14	50 77
{Piazzi XIV—104} B A.C. 4807. }		9 Libræ α		1829.		June 18	50 10
				April 13	15 3 10 61	July 9	50 40
1829.		1829		14	10 27		
April 29	14 23 23 34	April 13	14 41 29 37	20	9 90		
		14	29 10	21	9 85		
				24	10 17		
				29	9 47		
				30	10 29		

Trianguli Australis β			49 Libræ, continued		1 Ophiuchi δ , continued		2 Ophiuchi ϵ , continued	
1829 April 13	15 ^h 40 ^m	14 ^s 86	1830 July 2	15 ^h 50 ^m	47 ^s 77	1829 April 14	16 ^h 5 ^m	26 ^s 73
14		14 63				24		26 41
24		14 62				29		26 64
29		14 34				30		26 49
30		14 68	8 Scorpii β					
May 1		14 69	1829 April 14	15 55	33 94	May 1		26 85
11		14 83	24		33 76	11		26 86
12		14 84	30		33 81	12		26 94
14		14 61				14		26 62
June 18		13 69	May 1		34 03	June 15		26 71
			11		34 02	18		26 74
			12		34 14			
			14		33 85	July 6		26 62
46 Libræ θ			June 18		33 80	7		26 67
1830 July 2	15 44	9 33	July 6	-	33 76	8		26 54
3		9 55	7		33 96	9		26 57
			9		33 82	11		26 60
7 Scorpii δ			11		33 72	13		26 56
1829 April 13	15 50	17 40	14		33 78	14		26 58
14		17 87	15		33 76	15		26 72
24		17 46	16		33 73	16		26 54
29		17 61	21		33 77	21		26 52
30		17 58	22		33 93	22		26 78
May 1		17 82	23		33 83	23		26 55
11		17 84	24		33 76	24		26 78
12		17 99	25		33 86	25		26 59
14		17 75	27		33 75	27		26 62
June 18		17 58	Aug 7		33 81	Aug 7		26 66
July 6		17 56	8		33 92	8		26 67
7		17 76	13		33 94	13		26 67
8		17 63	{ Piazz XV—252 }			2 Ophiuchi ϵ		
15		17 62	{ B A C. 5330 }			1829 April 24	16 9	19 71
16		17 60	1829 Aug 13	15 55	34 86	29		20 08
21		17 71				30		19 85
23		17 60	14 Scorpii ν			May 1		20 25
24		17 63				11		20 18
25		17 78	1829 Aug. 9	16 2	7 53	12		20 16
27		17 65				14		20 02
49 Libræ			1 Ophiuchi δ			June 18		20 11
1829 Aug 8	15 50	47 94	1829 April 13	16 5	26 80	July 6		19 94
9		47 82				7		20 09
						8		19 94
						9		19 99
						14		20 02
						15		20 07
						16		19 92
						4 Ophiuchi ψ .		
						1829 July 23	16 14	9 98
						24		10 03
						25		10 00
						27		9 94
						Aug 7		10 03
						8		10 02
						7 Ophiuchi χ		

21 Scorpii α, continued			23 Scorpii τ, continued			26 Scorpii ε, continued			35 Ophiuchi η, continued		
1829			1829			1829			1829		
July 22	16 ^h 18 ^m 59 ^s 79		Aug 7	16 ^h 25 ^m 18 ^s 79		Aug 7	16 ^h 39 ^m 10 ^s 19		June 18	17 ^h 0 ^m 37 ^s 98	
23	59 73		8	18 66		8	10 08		July 6	38 03	
24	59 86		13	18 85		17	10 16		8	38 03	
25	59 87		17	18 80		27	9 86		9	38 08	
27	59 70		27	18 68		{ Piazzī XVI—236 } { B A C 5700 }			Aug. 7	38 21	
Aug 7	59 84		Trianguli Australis α			{ Piazzī XVI—251 } { B A C 5712 }			8	38 01	
13	59 87		1829			1830			9	37 93	
27	59 84		April 14	16 30 45 03		July 31	16 47 5 11		13	38 11	
Sept 14	59 78		20	44 98		{ Piazzī XVI—251 } { B A C 5712 }			14	38 24	
15	59 58		24	44 90		{ Piazzī XVI—251 } { B A C 5712 }			20	38 19	
17	59 64		29	44 61		{ Piazzī XVI—251 } { B A C 5712 }			25	38 00	
22	59 73		30	44 49		{ Piazzī XVI—251 } { B A C 5712 }			27	38 13	
24	59 85		May 1	44 60		{ Piazzī XVII—43 } { B A C 5839 }			{ Piazzī XVII—43 } { B A C 5839 }		
26	59 73		11	44 56		1829			{ Piazzī XVII—43 } { B A C 5839 }		
27	59 83		12	44 78		Aug 9	16 49 50 99		{ Piazzī XVII—43 } { B A C 5839 }		
28	59 77		14	44 82		1830			1829		
Oct 1	59 85		June 18	43 23		July 3	50 94		Aug 9	17 10 0 09	
2	59 82		Aug 7	44 45		30	50 96		Aræ γ		
1830			8	44 50		Octantis σ			1829		
Sept. 15	59 76		17	44 99		1829			June 18	17 11 5 73	
16	59 86		27	44 69		April 14	16 54 69 59		Aug. 7	6 27	
19	59 73		{ Piazzī XVI—143 } { B A C 5579 }			20	64 99		8	6 37	
21	59 89		1830.			24	72 16		13	6 31	
22	59 72		July 3	16 31 45 08		29	68 44		20	6 50	
29	59 93		26 Scorpii ε			30	68 12		24	6 82	
Oct 1	59 90		1829			May 1	67 12		25	6 45	
8 Ophiuchi φ			April 14	16 39 10 08		11	71 61		26	6 69	
1829			24	9 79		14	58 83		27	6 36	
June 15	16 21 24 95		29	9 94		June 18	27 55		Aræ α		
Aug 8	25 05		30	9 76		July 8	68 63		1829		
9	24 98		May 1	9 96		35 Ophiuchi η			April 20	17 18 42 92	
1830			11	9 87		1829			24	42 76	
July 2	25 06		12	9 99		April 20	17 0 38 13		29	42 91	
23 Scorpii τ			14	9 92		24	38 18		30	42 65	
1829			June 18	9 69		29	38 08		May 1	42 83	
July 22	16 25 18 82		July 6	9 99		30	37 93		11	42 98	
23	18 65		8	9 89		May 1	38 08		12	42 83	
24	18 74		9	9 82		11	38 06		June 18	42 39	
25	18 70					12	38 16		Aug 7	42 96	
27	18 78					14	38 08		8	42 87	

Aræ α, continued			55 Serpentis ζ			Alæ θ			20 Sagittarii : continued		
1829 Aug 13	h m s 17 18 42 83		1829 Sept 7	h m s 17 27 51 56		1829 Sept 3	h m s 17 53 24 06		1829 Aug 27	h m s 18 12 53 18	
14	42 99		Scorpii α			12	24 10		28	53 40	
15	42 94					13 Sagittarii μ			Sept 3	53 28	
20	42 94		1829 April 20	17 30 43 75		1829 May 11	18 3 35 85		4	53 28	
24	43 13		29	44 05		12	35 85		12	53 42	
25	42 89		30	43 87		June 18	35 80		21 Sagittarii		
26	43 17		May 1	44 03		Aug 13	35 90		1830 Aug 1	18 15 13 56	
27	42 68		11	44 02		14	36 00		B A C 6267		
35 Scorpii λ			12	44 03		15	35 64		1829 Sept 7		
1829 April 24	17 22 4 40		June 18	43 84		17	35 90		18 18 1 48		
29	4 35		Aug 7	44 15		19	36 03		Telescopii δ'		
30	3 99		8	44 07		26	36 09		1829 Aug 24	18 19 9 65	
May 1	4 36		13	43 97		27	35 94		26	9 74	
12	4 45		14	44 02		28	36 12		Sept 3	9 53	
June 18	4 02		15	43 84		Sept. 3	35 78		12	9 66	
Aug 7	4 47		20	44 25		4	35 86		Telescopii δ''		
8	4 46		25	44 10		7	36 06		1829 Aug 24	18 19 27 51	
15	4 58		26	44 46		{ Piazzæ XVIII — 25. }			26	27 65	
20	4 44		27	43 85		{ B A C 6195 }			Sept 3	27 28	
25	4 41		Scorpii ι'			Aug 11	18 7 30 28		4	27 38	
26	4 65		1829 April 20	17 35 41 96		20 Sagittarii :			12	27 51	
27	4 32		24	41 87		1829 April 20	18 12 53 19		Pavonis ζ		
Scorpii θ			29	42 02		24	53 21		1829 Aug 24	18 23 8 39	
1829 April 24	17 25 6 08		30	41 92		29	53 31		25	8 35	
29	6 62		May 1	42 04		30	53 08		26	7 95	
30	6 75		11	42 08		May 1	53 24		Sept 3	8 33	
May 1	6 81		12	42 18		11	53 20		4	8 08	
11	6 85		June 18	41 71		12	53 40		12		
12	6 89		Aug. 7	41 94		June 18	53 04				
Aug 7	6 85		8	42 18		Aug. 13	53 13		1829 Aug 24	18 23 8 39	
8	6 81		13	41 82		14	53 34		25	8 35	
13	6 81		14	42 21		15	53 26		26	7 95	
14	6 70		15	42 02		17	53 29		Sept 4	8 33	
15	6 87		25	42 22		19	53 32		14	8 08	
20	6 82		26	42 32		25	53 30				
26	6 78		64 Ophiuchi ν			26	53 49				
27	6 65		1829 Aug 28	17 49 40 36							
28	6 96		Sept 4	40 38							
			12	40 26							

{ Piazzæ XVIII — 128 } B A C 6340		34 Sagittarii σ , continued		16 Aquilæ λ		Sagittarii β^1 (1st Star), continued	
1829 Sept 7	18 27 59 26	1829 Aug 8	18 44 43 26	1829 April 20	18 57 13 81	1829 Aug 8	19 10 23 96
		13	43 34	29	13 53	13	24 06
		15	43 40	30	13 39	14	24 18
2 Aquilæ		17	43 18			15	24 28
		24	43 30	May 1	13 52	17	24 08
1829 Sept. 4	18 32 58 04	25	43 26	11	13 59	19	24 01
12	58 01	26	43 45	12	13 64	26	24 26
14	57 99	27	43 20			27	23 84
		28	43 33	July 21	13 39	28	24 18
27 Sagittarii ϕ				22	13 57		
		Sept. 3	43 27	23	13 51	Sept 2	23 85
		4	43 28	24	13 52	3	23 84
		7	43 32	27	13 64	4	24 13
		10	43 18			7	24 10
		12	43 21	Aug 7	13 58	10	23 83
		14	43 11	8	13 62	12	24 12
38 Sagittarii ζ				13	13 46	16	23 84
1829 Aug 24	18 35 2 07			14	13 68	44 Sagittarii ϵ^1	
25	1 91			15	13 52		
26	2 10			17	13 60	1829 Oct 6	19 11 48 56
28	2 19			24	13 57	45 Sagittarii ϵ^2 .	
Sept 3	2 08			25	13 62		
14	2 06			26	13 79	1830 Aug. 2	19 11 55 60
29 Sagittarii		1829 July 21	18 51 47 07	Sept 2	13 55	Sagittarii α	
		22	47 56	3	13 67		
1829. Sept. 7	18 39 34 91	23	47 30	4	13 58	1829 Sept. 12	19 12 57 77
		24	47 37	7	13 73	16	57 79
		27	47 35	41 Sagittarii π .		30 Aquilæ δ	
1830 July 5	35 55	Aug. 7	47 33	1829 Sept 16	18 59 39 01		
		8	47 29			1829 Oct. 1	19 16 55 67
Aug 1	34 62	13	47 41	20 Aquilæ.		2	55 57
2	34 60	14	47 49			3	55 57
34 Sagittarii σ		15	47 60	1829 Aug. 26	19 3 27 49	B A C 6658.	
		17	47 53	28	27 52		
		24	47 48	Sept 2	27 25		
		25	47 44	4	27 48		
		26	47 68	16	27 36		
		27	47 35	Sagittarii β^1 (1st Star)			
		28	47 44				
1829 April 20	18 44 43 19	Sept. 3	47 41	1829 Aug. 7	19 10 23 98	1830 July 6	19 18 11 57
24	43 30	7	47 61				
29	43 34	10	47 39				
30	43 08	12	47 50				
May 1	43 15	40 Sagittarii π .					
11	43 17						
12	43 20						
July 21	43 10	1829 Sept 14	18 56 19 36				
22	43 22	16	19 30				
23	42 99						
24	43 22						
27	43 30						

B. A. C 7020			55 Sagittarii e^2 , continued		53 Aquilæ α , continued		53 Aquilæ α , continued	
1829		^h ^m ^s	1829	^h ^m ^s	1829	^h ^m ^s	1830	^h ^m ^s
April 20		19 26 12 78	Aug 8	19 32 47 38	Aug 25	19 42 29 33	Oct 3	19 42 29 20
24		15 78	9	47 42	27	29 11	8	29 31
29		5 30	13	47 22			9	29 45
30		3 32	14	47 44	Sept 2	29 39	10	29 33
May 1		3 67	15	47 41	4	29 35	11	29 37
11		17 31	17	47 45	7	29 34	12	29 47
12		14 54	19	47 43	10	29 27	16	29 47
Aug 7		17 66	28	47 51	12	29 32	17	29 27
1831			Sept 3	47 37	14	29 31	18	29 36
Jan 27	SP	22 69	7	47 55	15	29 45	19	29 37
31	SP	19 83	10	47 40	16	29 29	23	29 34
{Piazzi XIX—176.}			12	47 46	17	29 13	24	29 26
{B A C—6707}			50 Aquilæ γ		20	29 26	1831	
1830			1829		22	29 31	Mar 15	29 38
July 6		19 26 31 16	Oct 1	19 38 10 70	24	29 37	16	29 20
39 Aquilæ α			2	10 81	25	29 36	20	29 30
1829			3	10 68	26	29 40	21	29 34
Aug 8		19 27 44 57	6	10 50	27	29 35	22	29 34
9		44 73	10	10 54	28	29 37	27	29 29
13		44 59	1830				28	29 26
14		44 46	Aug. 12	10 61	Oct. 1	29 17	29	29 26
15		44 80	13	10 75	2	29 08	59 Sagittarii b	
17		44 56	14	10 68	3	29 39	1829	
19		44 40	57 Sagittarii		6	29 32	Sept 14	19 46 30 25
28		44 72	1830		10	29 29	16	30 16
Sept 2		44 61	Aug 2	19 42 18 64	19	29 34	17	30 21
3		44 58	53 Aquilæ α .		20	29 29	60 Aquilæ β	
4		44 62	1829		23	29 25	1829	
7		44 66	April 20	19 42 29 21	26	29 35	Sept 28	19 46 57 83
10		44 67	24	29 21	Nov 3	29 36	Oct 1	57 89
12		44 56	29	29 16	14	29 18	2	57 90
54 Sagittarii e^1			30	29 12	19	29 36	3	57 69
1829			May 1	29 05	20	29 39	6	57 82
Aug. 27		19 30 58 76	11	29 01	24	29 28	10	57 77
55 Sagittarii e^2 .			12	29 04	26	29 48	1830	
1829			Aug. 7	29 20	Dec. 11	29 21	Aug. 12	57 85
Aug. 7		19 32 47 38	8	29 31	24	29 19	13	57 85
			9	29 31	1830		14	57 69
			15	29 34	Aug 11	29 31	62 Sagittarii c .	
			19	29 27	12	29 38	1829	
			24	29 19	13	29 33	Aug. 9	19 52 11 48
					14	29 35	14	11 69
					29	29 33		
					Oct. 1	29 32		

62 Sagittarii ϵ , continued.			6 Capricorni α^2 , cont			Pavonis α			{Piazzi XX—172} B A C. 7078		
1829 Aug 15	h m s 19 52 11 78		1829 May 1	h m s 20 8 36 90		1829 April 29	h m s 20 12 8 11		1830 Aug 3	h m s 20 22 53 50	
17	11 70		12	36 79		30	8 39		{Piazzi XX—187} B A C. 7087.		
20	11 60					Aug 14	8 92		1829 Aug 13	20 24 43 40	
24	11 69		Aug 9	37 13		19	8 99		{Piazzi XX—187} B A C. 7087.		
25	11 60		13	36 92		25	8 83				
26	11 89		15	37 13		27	8 70				
27	11 80		20	36 99		28	8 80				
Sept. 2	11 60		24	37 01		Sept 3	8 56				
10	11 73		25	37 04		12	8 65				
12	11 66		27	37 16		16	8 62				
14	11 79		Sept 2	36 98		10 Capricorni π			1829 April 20	20 25 34 57	
16	11 69		10	37 07		1829 Sept. 2	20 17 34 89		29	34 42	
17	11 67		12	36 95		3	35 02		30	34 28	
22	11 58		28	37 01		14	35 00		May 1	34 39	
25	11 64		Oct. 1	36 94		17	35 01		Aug 14	34 78	
63 Sagittarii			2	36 97		24	34 88		15	34 95	
1829 Aug 13	19 52 26 87		3	36 94		25	35 00		17	34 85	
65 Aquilæ θ			6	37 12		28	35 04		19	34 83	
1829. Aug. 9	20 2 31 91		10	37 09		Oct 1	35 00		24	34 79	
14	31 94		1830. Mar. 18	36 95		1830 Aug 31	34 89		25	34 73	
15	32 07		7 Capricorni σ .			11 Capricorni ϵ			26	34 84	
17	31 87		1830 Oct 24	20 9 34 72		1830 Oct 24			27	34 60	
19	31 72		9 Capricorni β			1830 Oct 24			28	34 67	
20	31 83		1829 Aug. 9			69 Aquilæ			Sept 2	34 30	
24	31 89		20 11 27 22			1829 Aug 24	20 20 45 73		3	34 56	
25	31 94		Sept. 7	27 37		Sept 3	45 72		7	34 57	
26	32 03		10	27 20		14	45 74		12	34 55	
27	31 73		14	27 09		17	45 78		14	34 58	
Sept. 2	31 91		17	27 26		24	45 58		17	34 47	
10	31 94		22	27 02		25	45 71		22	34 40	
12	31 94		24	27 17		26	45 65		24	34 40	
14	31 89		25	27 07		28	45 64		28	34 55	
16	31 88		Oct 6	26 88		13 Capricorni τ^1 .			1830 July 7	20 25 54 72	
22	31 91		1830 Mar 18	27 18		1830 Aug 31			Aug 3	54 54	
25	31 84		Aug 31	27 23		1830 Aug 31			20 27 48 89		
6 Capricorni α^2 .			6 Capricorni α^2 .			69 Aquilæ			{Piazzi XX—194} B A C. 7097.		
1829 April 29	20 8 36 98		1829 Aug. 9	20 11 27 22		1829 Aug 24	20 20 45 73		13 Capricorni τ^1 .		
30	36 89		Sept. 7	27 37		Sept 3	45 72		1830 Aug 31		
6 Capricorni α^2 .			10	27 20		14	45 74		20 27 48 89		
6 Capricorni α^2 .			14	27 09		17	45 78		1830 Aug 31		
6 Capricorni α^2 .			17	27 26		24	45 58		20 27 48 89		
6 Capricorni α^2 .			22	27 02		25	45 71		1830 Aug 31		
6 Capricorni α^2 .			24	27 17		26	45 65		20 27 48 89		
6 Capricorni α^2 .			25	27 07		28	45 64		1830 Aug 31		
6 Capricorni α^2 .			Oct 6	26 88		Oct. 1	45 70		20 27 48 89		
6 Capricorni α^2 .			1830 Mar 18	27 18		1830 Aug 31			20 27 48 89		
6 Capricorni α^2 .			Aug 31	27 23		1830 Aug 31			20 27 48 89		

Pavonis β .		{Piazz XX—310 B A C 7209}		22 Capricorni η		29 Capricorni			
1829 April 29	20 ^h 29 ^m 31 ^s 36	1830 Aug 3	20 ^h 39 ^m 41 ^s 42	1829 Aug 15	20 ^h 54 ^m 43 ^s 48	1829 Sept 3	21 ^h 6 ^m 19 ^s 84		
May 1	31 57	30	41 37	17	43 12	12	19 90		
Aug 15	32 14	Indi β		19	43 15	17	19 93		
24	32 04			25	43 10	22	19 66		
25	32 14			26	43 30	26	19 69		
26	32 32			27	43 12	28	19 72		
27	31 90			28	43 21	Oct. 1 19 76 2 19 76 3 19 58 6 19 81 10 19 73			
28	32 25	1829 Aug. 15	20 41 27 78	Sept 2	43 10				
Sept. 2	31 86	17	27 48	3	43 18				
3	32 02	19	27 56	7	43 31				
7	32 15	24	27 81	12	43 18				
12	32 02	25	27 63	14	43 12	1830 Aug 31 19 84			
14	31 97	26	27 47	17	43 24				
17	31 90	27	27 54	22	43 11				
24	31 82	28	27 50	25	43 13				
25	31 84	Sept. 3	27 54	26	43 03	30 Capricorni.			
26	31 66	7	27 69	28	42 95				
{Piazz XX—240 B.A.C. 7145 }		12	27 53	Oct. 1	42 95				
1830. July 7 20 30 59 00 Aug 3 58 81		14	27 42	2	42 92				
		17	27 48	3	43 18				
		25	27 38	6	43 16				
		28	27 10	10	43 16				
		7 Aquarii		13 Aquarii ν .					
16 Capricorni ψ		1829 Aug 14	20 47 42 26	1829. Aug. 14	21 0 19 58	Oct 5 21 8 24 68 8 24 51 9 24 70 10 24 85 11 24 72 16 24 73 17 24 75 18 24 66 19 24 46 21 24 56 23 24 70			
1829. Sept 14 20 36 1 01 17 1 19 25 0 93 26 0 91		21 Capricorni		15	19 69				
		1830 Oct 9	20 51 17 20	17	19 57				
		10	17 24	19	19 45	B A.C. 7406.			
		11	17 24	25	19 60				
		16	17 20	27	19 66				
2 Aquarii ϵ .		17	17 27	28	19 62				
1829 Nov 3 20 38 28 05		18	17 27	Sept. 2	19 63				
		19	17 24	3	19 54	1829. Aug 17 21 12 10 65			
		21	17 15	12	19 75				
		23	17 13	14	19 50				
		9 Aquarii.		17	19 51				
Microscopii α		1829 Aug. 13 20 51 45 71		21	19 53	1829 Aug 15 21 12 16 70 25 16 58 27 16 49 28 15 92			
1829 Sept. 24 20 39 19 69				22	19 62				
				25	19 61				
				26	19 55				
				28	19 65				
1829 Sept. 24 20 39 19 69		Oct. 1	19 62	Sept 2 16 07 7 16 71 12 16 29 22 16 29 24 16 14					
		2	19 57						
		3	19 49						
		6	19 72						
		10	19 67						

18 Aquarii		23 Aquarii ξ		49 Capricorni δ, cont		Gruis α	
1829 Sept 10	h m s 21 14 53 66	1829 Aug 14	h m s 21 28 41 67	1829 Sept 2	h m s 21 37 38 79	1829 Sept 7	h m s 21 57 28 59
				7	38 90	14	28 34
19 Aquarii.		40 Capricorni γ		12	38 98	36 Aquarii	
1829 Aug 14	21 16 4 24	1829 Aug 15	21 30 39 90	17	38 96	1829 Nov 5	22 0 27 41
34 Capricorni ζ.		27	39 71	22	38 83	1830 Aug 5	27 18
1829 Aug 15	21 16 57 15	28	39 77	Gruis γ.		37 Aquarii e ¹	
25	56 88	Sept 2	39 65	1829 Aug 15	21 43 36 73	1829 Aug 14	22 1 27 03
27	56 97	7	39 98	27	36 65	38 Aquarii e ²	
28	57 00	12	39 80	28	36 48	1830 Sept 1	22 1 31 88
Sept. 2	57 00	14	39 46	Sept 2	36 47	{ Piazzani XXII—2 }	
7	56 99	21	39 57	7	36 41	{ B A C 7726 }	
14	56 82	22	39 57	12	36 56	1829 Sept 12	22 1 41 60
22	56 82	24	39 57	24	36 39	Toucanæ α	
24	56 86	42 Capricorni		Oct 19	36 42	1829. Aug 26	22 6 46 57
28	56 87	1829 Sept 10	21 32 17 68	31 Aquarii α		27	46 72
Oct. 1	56 78	46 Capricorni c ¹ .		1829 Sept 24	21 54 30 94	28	46 53
2	56 82	1829. Sept 10	21 35 55 97	Oct 19	30 92	Sept 14	46 52
3	56 76	47 Capricorni c ² .		34 Aquarii α		Oct 19	46 44
6	56 84	1829. Nov 5	21 37 11 81	1829 Aug 27	21 57 2 98	21	46 21
10	56 85	1830 Aug 5	11 67	Sept 2	2 95	42 Aquarii	
22 Aquarii β		48 Capricorni λ.		10	2 93	1830 Sept 1	22 7 41 44
1829 Aug 26	21 22 36 34	1829 Nov 4	21 37 22 67	12	3 01	2	41 56
27	36 32	49 Capricorni δ		22	3 02	Oct 26	41 20
28	36 45	1829 Aug 15	21 37 39 08	24	3 00		
Sept 2	36 27	17	39 01	33 Aquarii α			
7	36 35	26	38 82	1829 Nov. 4	21 57 14 93		
12	36 39						
22	36 30						
23	36 18						
24	36 16						
25	36 22						
26	36 24						
28	36 25						
Oct 2	36 27						
3	36 15						
6	36 35						
9	36 38						

43 Aquarii θ			62 Aquarii η			Grus ϵ , continued			{Piazzi XXII—250} B A C 7986		
1829 Aug 14	22	7 51 16	1829 Oct 17	22	26 37 11	1829 Oct 19	22	38 14 27	1829 Oct 10	22	46 22 02
15		51 63	19		37 18	20		14 27			
{Piazzi XXII—46} B A C 7774			20		37 15	21		14 06	24 Piscis Australis α .		
1830 Aug. 5	22	7 53 70	21		37 08	23		14 32	1829 Aug 14	22	48 14 36
48 Aquarii γ			22		37 28	24		14 24	17		14 10
1829 Aug 26	22	12 52 36	23		37 22	28		14 16	26		14 28
27		52 35	26		37 18	30		14 54	28		14 25
28		52 35	30		37 21	Lalande 44564.			Sept 3		14 43
{Piazzi XXII—81} B. A C 7804			63 Aquarii κ .			1830. Oct 27	22	38 30 19	7		14 17
1829 Aug 15	22	14 37 07	1829 Sept 12	22	28 56 93	73 Aquarii λ			10		14 07
51 Aquarii.			Grus β			1829. Aug. 15	22	43 44 62	14		14 12
1829 Sept 12	22	15 15 19	1829 Aug 17	22	32 28 48	16		44 53	Oct 17		14 17
55 Aquarii ζ			26		28 51	17		44 23	19		14 06
1829 Aug 27	22	20 4 58	27		28 84	76 Aquarii δ			20		14 21
28		4 51	28		28 56	1829 Aug. 14	22	45 37 20	21		14 15
Sept. 7		4 53	Sept 3		28 88	26		37 34	22		14 40
10		4 47	7		28 52	27		37 25	23		14 23
14		4 41	10		28 47	28		37 09	24		14 46
67 Aquarii			14		28 30	26		44 43	28		14 31
1829 Aug 27	22	38 14 54	Oct 20		28 55	30		44 66	30		14 31
19		4 59	21		28 43	Nov 5		44 53	16		14 27
20		4 59	23		28 65	6		44 27	3 Piscium		
21		4 48	24		28 67	81 Aquarii			1829. Aug 16	22	51 54 79
30		4 80	28		28 50	76 Aquarii δ			B. A C. 8019		
67 Aquarii			30		28 64	1829 Aug. 14	22	45 37 20	1829 Sept 12	22	53 4 57
1829 Sept 12	22	34 21 21	Grus ϵ			26		37 34	83 Aquarii h^1		
1830 Sept 2		21 46	1829 Aug 27	22	38 14 54	27		37 25	1829 Nov 6	22	56 17 49
67 Aquarii			Sept 3		14 52	28		37 09	83 Aquarii h^1		
1829 Aug 27	22	38 14 54	7		14 18	Sept 3		37 23	83 Aquarii h^1		
19		4 59	14		13 95	Oct. 26		37 16	83 Aquarii h^1		
20		4 59	Grus ϵ			Nov 2		37 29	83 Aquarii h^1		
21		4 48	1829 Aug 27	22	38 14 54	76 Aquarii δ			83 Aquarii h^1		
30		4 80	Sept 3		14 52	1829 Aug. 14	22	45 37 20	83 Aquarii h^1		
67 Aquarii			7		14 18	26		37 34	83 Aquarii h^1		
1829 Sept 12	22	34 21 21	14		13 95	27		37 25	83 Aquarii h^1		
1830 Sept 2		21 46	Grus ϵ			28		37 09	83 Aquarii h^1		
67 Aquarii			1829 Aug 27	22	38 14 54	Sept 3		37 23	83 Aquarii h^1		
1829 Aug 27	22	38 14 54	Sept 3		14 52	Oct. 26		37 16	83 Aquarii h^1		
19		4 59	7		14 18	Nov 2		37 29	83 Aquarii h^1		
20		4 59	14		13 95	76 Aquarii δ			83 Aquarii h^1		
21		4 48	Grus ϵ			1829 Aug. 14	22	45 37 20	83 Aquarii h^1		
30		4 80	1829 Aug 27	22	38 14 54	26		37 34	83 Aquarii h^1		
67 Aquarii			Sept 3		14 52	27		37 25	83 Aquarii h^1		
1829 Sept 12	22	34 21 21	7		14 18	28		37 09	83 Aquarii h^1		
1830 Sept 2		21 46	14		13 95	76 Aquarii δ			83 Aquarii h^1		
67 Aquarii			Grus ϵ			1829 Aug. 14	22	45 37 20	83 Aquarii h^1		
1829 Aug 27	22	38 14 54	1829 Aug 27	22	38 14 54	26		37 34	83 Aquarii h^1		
19		4 59	Sept 3		14 52	27		37 25	83 Aquarii h^1		
20		4 59	7		14 18	28		37 09	83 Aquarii h^1		
21		4 48	14		13 95	76 Aquarii δ			83 Aquarii h^1		
30		4 80	Grus ϵ			1829 Aug. 14	22	45 37 20	83 Aquarii h^1		
67 Aquarii			1829 Aug 27	22	38 14 54	26		37 34	83 Aquarii h^1		
1829 Sept 12	22	34 21 21	Sept 3		14 52	27		37 25	83 Aquarii h^1		
1830 Sept 2		21 46	7		14 18	28		37 09	83 Aquarii h^1		
67 Aquarii			14		13 95	76 Aquarii δ			83 Aquarii h^1		
1829 Aug 27	22	38 14 54	Grus ϵ			1829 Aug. 14	22	45 37 20	83 Aquarii h^1		
19		4 59	1829 Aug 27	22	38 14 54	26		37 34	83 Aquarii h^1		
20		4 59	Sept 3		14 52	27		37 25	83 Aquarii h^1		
21		4 48	7		14 18	28		37 09	83 Aquarii h^1		
30		4 80	14		13 95	76 Aquarii δ			83 Aquarii h^1		

84 Aquarii h ² .		90 Aquarii φ, continued		98 Aquarii b ¹ , continued		12 Piscium.	
1829 Nov. 6	22 ^h 56 ^m 27 ^s 49	1830. Nov. 6	23 ^h 5 ^m 31 ^s 11	1829. Oct. 20	23 ^h 14 ^m 1 ^s 78	1829 Sept. 13	23 ^h 20 ^m 47 ^s 21
		7	30 90	21	1 78		
Gruis :		9	30 92	23	1 90	13 Piscium	
		12	30 99	24	1 93	1829	
1829 Aug. 26	23 ^h 0 ^m 41 ^s 79	Toucanæ γ		26	1 92	Oct. 10	23 ^h 23 ^m 14 ^s 37
27	42 44	1829 Aug. 26	23 ^h 7 ^m 26 ^s 95	27	1 93	Sculptoris β	
28	42 02	27	27 16	28	1 86	1829 Aug. 26	23 ^h 23 ^m 49 ^s 80
Sept. 3	42 39	28	27 00	30	2 08	27	50 11
10	42 16	Sept. 3		Nov. 2	2 03	28	49 91
14	41 96	7	27 29	3	2 02	{ Piazzī XXIII — 68 }	
Oct. 20	42 00	10	26 96	4	2 02	Sept. 3	50 18
21	41 90	14	26 61	5	1 99	14	49 58
23	42 12	Oct. 20		{ Piazzī XXIII — 68 }		Oct. 20	49 75
26	42 25	21	26 82	{ B A C — 8152 }		21	49 77
27	42 18	23	27 02	1829 Sept. 13	23 ^h 14 ^m 48 ^s 58	22	50 03
28	42 07	24	26 96	99 Aquarii b ²		23	49 87
30	42 35	26	27 03			24	49 90
Nov. 16	42 01	27	27 04			26	50 04
89 Aquarii c ¹ .		30	27 10			27	50 04
1829 Nov. 2	23 ^h 0 ^m 49 ^s 47	93 Aquarii ψ ²		1829 Oct. 26	23 ^h 17 ^m 6 ^s 37	30	50 15
3	49 50	1829 Nov. 2	23 ^h 9 ^m 3 ^s 92	27	6 53	Nov. 3	50 05
90 Aquarii φ		3	3 91	28	6 35	4	49 98
1829 Aug. 16	23 ^h 5 ^m 31 ^s 07	96 Aquarii		30	6 47	14 Piscium	
Oct. 10	31 18	1829 Sept. 12	23 ^h 10 ^m 34 ^s 90	Nov. 2	6 58	1829 Oct. 10	23 ^h 25 ^m 24 ^s 69
Nov. 2	30 98	B A C 8129		4	6 42	Nov. 7	24 58
3	31 06	1830 Oct. 27	23 ^h 11 ^m 55 ^s 04	5	6 34	1830 Oct. 28	24 55
4	30 91	98 Aquarii b ¹		8 Piscium *		{ Piazzī XXIII — 126 }	
1830 Oct. 8	30 93			1829 Nov. 7	23 ^h 18 ^m 13 ^s 15	{ B A C 8214 }	
10	30 98	98 Aquarii b ¹		{ Piazzī XXIII — 96 }		1829 Sept. 12	23 ^h 26 ^m 45 ^s 66
11	30 96	1829 Sept. 3	23 ^h 14 ^m 2 ^s 03	{ B A C 8184 }		103 Aquarii A ¹	
12	30 98	7	2 07	1829 Sept. 12	23 ^h 20 ^m 44 ^s 64	1829 Aug. 26	23 ^h 32 ^m 44 ^s 95
16	30 91	10	2 08	1830 Oct. 28	44 76	28	44 85
17	31 05	14	1 63				
18	31 04						
19	30 98						
23	31 10						

103 Aquarii A ¹ , <i>cont.</i>				20 Piscium, <i>continued</i>				27 Piscium, <i>continued</i>				2 Ceti, <i>continued</i>						
1829.		^h ^m ^s		1830		^h ^m ^s		1829		^h ^m ^s		1829		^h ^m ^s				
Sept 3	23 32	45 06		Sept 3	23 39	12 37		Nov. 4	23 49	58 19		Oct. 23	23 55	1 48				
7		45 01		Sculptoris δ				5		58 17		26		1 52				
10		45 01						1830				Oct 28	58 01		Nov. 16		1 53	
14		44 74																
Oct 19 44 98 21 44 96 22 45 20 23 45 05 24 45 15 26 45 09 27 45 17 30 45 24 Nov 2 45 06 3 45 14 4 45 07 5 44 96 16 45 12				1829				Toucanæ :				{ Piazzì XXIII—270 }						
				Aug 26		23 40	3 43					{ B A. C. 8365. }						
				27			3 61											
				28			3 52											
				Sept 3			3 63	1829										
				7			3 41	Aug 26		23 51	0 98	1829						
				10			3 43	27			1 15	Oct 10		23 56	20 95			
				14			3 18	28			1 13	33 Piscium.						
Sept 3			3 63	Sept 3			1 30											
7			3 41	7			1 07											
10			3 43	14			0 68											
14			3 18	Oct 20			1 00											
Oct 19			3 22	22			1 02											
20			3 25	23			0 80											
21			3 27	27			1 11											
22			3 42	30			1 27											
23			3 49	29 Piscium														
26			3 21															
27			3 35	1829														
Nov 4			3 40	Nov 2		23 53	6 71											
Octantis γ ²				3			6 90											
				4			6 81											
20 Piscium				1829				2 Ceti										
				Nov 16		23 47	55 76											
27 Piscium				1829				4 Ceti.										
				Nov 2		23 49	58 21											
1829				1829														
Sept 12	23 39	12 00		Nov 2	23 49	58 21		1829										
13		12 05		3		58 29		Oct. 10	23 59	1 77								
Oct 10		12 24						1830										
				Oct 19			1 31	Sept. 3		1 93								
				22			1 60											

Observed Differences of Right Ascension of neighbouring Stars.

Difference of R. A. between α Geminorum and B. A. C. 2116			
1830.	Jan 7	By mean of observations at 1st and 7th wires, α Geminorum precedes B. A. C. 2116 by . . .	0 95
	Dec. 29	By similar observations, α Geminorum precedes B. A. C. 2116 by . . .	0 85 nearly
Difference of R. A. between Piazz1 VI—258 and α Canis Majoris.			
1830	Feb 23.	By an observation at the 2d wire, Piazz1 VI—258 precedes α Canis Majoris by . . .	18 7
	Feb 25	By a similar observation, Piazz1 VI—258 precedes α Canis Majoris by . . .	18 5
Differences of R. A. between B. A. C. 2575, Lacaille 2956, and ϵ Puppis.			
1830.	Feb. 25.	By an observation at the 2d wire, B. A. C. 2575 precedes ϵ Puppis by . . . and Lacaille 2956 precedes ϵ Puppis by . . .	40 7 10 7
Difference of R. A. between δ Libræ and α Libræ			
1829	May 25	By an observation at the 2d wire, δ Libræ precedes α Libræ by . . .	11 2
Difference of R. A. between β^1 Sagittarii (1st Star) and β^1 Sagittarii (2d Star)			
1829.	Aug. 13.	By mean of observations at the 1st and 7th wires, β^1 Sagittarii (1st Star) precedes β^1 Sagittarii (2d Star) by	3 2
	Aug. 27.	(No wire specified), β^1 Sagittarii (1st Star) precedes β^1 Sagittarii (2d Star) by	2 95
Difference of R. A. between α^1 and α^2 Capricorni.			
1829.	April 29	By an observation at the 2d wire, α^1 precedes by	23 7
	Aug. 13.	" 1st wire, " by	23 9
	17.	" 2d wire, " by	23 8
	25.	" 2d wire, " by	23 9
	26.	" 2d wire, " by	23 4
	Sept. 10.	" 2d wire, " by	23 8

*Differences of Right Ascension of Stars**Observed Differences of Right Ascension of neighbouring Stars (continued)*Difference of R.A. between B A C 6992 and β Capricorni

1829.	Sept. 17.	By an observation at the 2d wire, B A C 6992 precedes by	14 1
	22.	" 2d wire, "	by 14 05
	24.	" 2d wire, "	by 14 0
	25	" 2d wire, "	by 14 15

Difference of R A between A¹ and A² Aquarii

1829.	Oct 22.	By an observation at the 6th wire, A ² Aquarii follows by..	10 4
	24.	" 6th wire, "	by 10 7
	27.	" 6th wire, "	by 10 5
	30	" 6th wire, "	by. 10 6
Nov	2	" 6th wire, "	by. 10 6
	3.	" 6th wire, "	by.. 10 7
	5.	" 6th wire, "	by 10 9

ROYAL OBSERVATORY, CAPE OF GOOD HOPE.

MEAN NORTH POLAR DISTANCES OF STARS

FOR 1830, JANUARY 1,

DEDUCED FROM EACH DAY'S OBSERVATION,

IN THE YEARS

1830 AND 1831.

Hydrus β		20 Ceti		55 Ceti ζ , continued		16 Eridani τ^4 , continued	
1830	D	1830	D	1830	R	1830	R
Dec 5	168° 12' 45" 39	Oct 1	92° 4' 9" 21	Dec 13	101° 10' 44" 62	Dec 23	112° 22' 53" 93
				17	42 71		
1830	R	45 Ceti θ .		20	42 92	19 Eridani τ^5	
July 5	168 12 45 37			89 Ceti π			
6	45 82	1830	D			1830	D
8	45 03	Dec 5	99 3 46 90	1830	D	Dec 5	112 12 30 13
Hydrus β , SP.		10	47 83	Dec 23	104 34 59 51	10	29 59
		12	47 58	24	35 1 17	12	30 04
1830	D	1830.	R	1 Eridani τ^1		1830	R
July 3	168 12 44 15	Dec 3	99 3 45 83			Dec 3	112 12 31 08
6	44 98	6	50 32			6	29 07
7	45 04	11	45 42	1830 R		11	30 97
8	44 94	Eridani α		Dec 20	109 17 47 06	23 Eridani δ	
9	44 14						
12 Ceti		1830	D	3 Eridani η		1830	D
		April 7	148 6 6 82			Dec 15	100 20 38 12
1830	D	19	8 49	1830	D.	18	37 57
Sept 18	94 53 50 51	21	8 36	Dec 5	99 34 47 15	1830	R.
19	50 75	26	9 19	10	46 20	Dec. 13	100 20 40 86
21	49 87	May 3	8 35	15	46 94	16	39 01
22	50 30	5	7 24	18	47 55	27 Eridani τ^6	
23	51 81	1830	R.	1830	R		
24	49 67	April 20	148 6 7 52	Dec 3	99 34 46 74	1830 D	
Oct 3	48 59	23	7 72	13	48 99	Dec 24	113 45 25 82
5	50 69	28	8 27	16	46 79	1830.	R.
8	50 39	May 4	8 34	92 Ceti α		Dec 23	113 45 27 30
10	50 26					38 Eridani σ^1 .	
11	51 25	52 Ceti τ		1830	D		
12	52 52	1830	D	Nov 15	86 34 56 88	1830	D.
16	52 09	Dec 24	106 50 8 79	20	57 02	Dec 15	97 17 14 95
17	52 16	1830.	R.	1830.	R	18	13 21
18	52 12	Dec 23	106 50 7 98	Nov 19	86 34 57 11	1830.	R
19	52 25	55 Ceti ζ		21	58 49	Dec 16	97 17 12 45
20	51 34			16 Eridani τ^4 .		20	14 31
21	52 09	1830	D				
23	49 62	Dec 15	101 10 41 79	1830	D		
28	52 65			Dec 24	112 22 55 68		
Nov 6	52 49						
7	51 85						
9	51 93						
10	51 73						
12	50 81						
13	51 18						
14	51 66						
15	51 02						
19	50 81						

Caeli α		69 Eridani λ, continued		10 Leporis		58 Orionis α	
1831	D	1831	R	1831.	D.	1830	D
Jan. 26	132° 11' (50' 64)	Feb 1	98° 58' 44" 47	Feb 2	110° 59' 44" 98	April 20	82° 37' 56" 22
31	33 34	3	45 89			24	58 16
Feb 2	32 01	4	45 74			30	57 14
		19 Orionis β		11 Leporis α		July 28	56 79
1831	R			1831	D	Dec. 15	56 77
Jan 25	132° 11' 34 14			Feb. 11	107 57 0 86	20	59 24
27	33 22			15	0 72	24	56 49
Feb 1	32 05	1830	D.	1831	R	1830	R
3	32 54	April 22	98 24 16 46	Feb 5	107 57 1 06	April 22	82 37 57 85
		29	17 14	13	2 98	29	58 89
61 Eridani α		1831		Columbæ α		July 22	57 55
		Feb. 14	16 54			29	56 15
1830	D	18	16 35			30	56 24
Dec 15	95 44 36 03	1831	R			Dec 18	58 33
18	36 00	Feb 12	98 24 18 13			23	(51 47)
1830	R	17	18 37	1831	D	1 Canis Majoris ζ	
Dec 13	95 44 41 54	20 Orionis τ.		Feb 12	124 10 10 35	1831	D
16	33 41			14	10 99	Feb. 27	119 59 35 75
20	38 95	1830	D.	17	11 16	Mar 1	35 70
63 Eridani		Dec. 15	97 2 8 90	19	12 32	1831	R.
		18	6 25	22	10 82	Feb 26	119 59 35 48
1830.	R.	1830.	R	25	11 59	28	36 72
Dec 23	100 31 9 09	Dec. 16	97 2 8 43	53 Orionis α.		2 Canis Majoris β	
		20	6 78			1831.	D.
67 Eridani β		9 Leporis β.		1831	D	Feb 19	107 52 41 24
1831	D	1831	D.	Mar 1	99 44 12 10	25	40 28
Feb 11	95 18 46 46	Jan 27	110 54 5 52	4	11 81	1831.	R
15	48 01	Feb 3	4 90	1831.	R.	Feb 17	107 52 41 74
1831.	R			Feb 26	99 44 13 95	22	40 84
Feb 5	95 18 47 83	1831	R	Mar 3	13 12	Argus α	
13	50 02	Jan. 26	110 54 5 53	Columbæ β		1830	D
		31	1 79			April 7	142 36 21 24
69 Eridani λ		Feb. 4	5 40	1831.	D.	12	20 89
		34 Orionis δ		Jan 26	125 50 12 80	14	20 17
1831.	D.			27	13 30	30	20 21
Jan 27	98 58 41 82	1830	D	31	13 70		
Feb 2	41 51	Dec 24	90 25 58 82	Feb. 1	13 62		
1831.	R	1830	R.	2	13 37		
Jan 25	98 58 46 44	Dec 23	90 25 58 55	3	15 70		
				4	15 33		
				5	13 79		

Argûs α, continued		9 Canis Majoris α, cont		Argûs π		Argûs ζ	
1830	D.	1831	D	1831.	D	1831	D.
May 4	142° 36' 19" 82	Feb 2	106° 29' 22" 86	Feb. 11	126° 47' 49" 51	Feb 19	142° 31' 47" 14
		5	22 95	13	48 25	25	46 20
1831		12	24 41	17	49 36		
Jan 27	19° 61	14	21 63			1831	R.
				1831.	R.	Feb 17	142° 31' 45" 41
Feb 11	19 78	Mar 13	26 67	Feb 5	126 47 47 99	22	45 02
13	20 18	15	24 30	12	47 01		
15	20 96	17	24 17	16	46 81		
16	19 41	22	23 56			Argûs ζ.	
		25	23 50			1831	D.
1830	R.			31 Canis Majoris π		Mar 2	129° 31' 43" 33
April 13	142 36 19 64	1830	R			4	49 62
15	21 03	April 10	106 29 22 03	1831.	D.	5	43 81
29	19 53	13	23 71	Feb 19	118 58 35 59		
May 3	21 02	15	22 57	25	35 82	1831	R.
5	19 28	22	23 85			Mar 1	129° 31' 41" 18
		29	22 19	1831	R	3	39 95
1831				Feb 22	118 58 34° 07		
Jan 26	23 19	May 3	24 08	26	35° 97		
31	19 78	5	23 61			Argûs α.	
Feb. 4	22 27			10 Canis Minoris α		1830.	D.
12	20 96	1831				April 7	148° 57' 52" 12
14	20 10	Jan. 26	25 42			1831	
		31	25 78	1830.	D.	Feb 19	54 53
Argûs ν		Feb 3	26 89	April 20	84 20 45° 84	25	53 56
1831	D.	4	24 73	22	46 25		
Feb 19	133 3 4 32	11	27 53	30	45° 42	1830	R.
25	4 01	13	25 43	July 28	45 99	April 2	148° 57' 51" 33
		16	23 90			1831	
1831.	R.	Mar 7	24 57	Aug 2	46 32	Feb. 17	51 86
Feb 17	133 3 4 91	14	21 53	6	46° 75	22	53 77
26	2 11	16	23 90				
9 Canis Majoris α		21	21 45	1831.		Argûs δ.	
		24	22 53	Feb. 2	45° 20	1830.	D.
1830	D			4	42 47	April 5	144° 5' 17" 48
April 12	106 29 26 87	22 Canis Majoris		5	46° 53	7	16 88
14	23 72			12	47 24		
20	23 04	1831.	D.	13	45° 73	1831.	
24	23 68	Mar 3	117 41 49° 51			Feb. 19	21 28
26	23 36	5	49° 77	1830	R.	25	18 31
30	22 30			April 21	84 20 45° 63		
May 4	22 40			May 3	47 18	1830	R.
		1831	R	July 22	47° 50	April 2	144° 5' 15" 93
1831		Mar 2	117 41 46° 77	30	45 99	6	19 22
Jan. 27	22 73	4	45° 46	1831		1831.	
				Feb. 3	49 99	Feb 17	19 43
				15	48 63	22	17 84

Argûs λ.		30 Hydræ α, continued		32 Leonis α		11 Crateris β, continued.	
1830 April 5 7	D. 132° 44' 57.80 59 90	1831 Mar 25 27	D 97° 55' 35.04 34 71	1830 April 3 5	D 77° 12' 18.28 18 55	1830 April 21 May 3	R 111° 53' 56.73 57 81
1831. Mar. 2 4	59 04 45 00	1830 April 6 10 15	R 97 55 35 24 32 98 33 78	1830 April 28	R 77 12 17 86	77 Leonis σ	
1830 April 2 6	R 132° 44' 57.18 58 83	1831 Mar 7 15 21 24 26	33 92 34 14 33 25 34 81 35 11	Argûs θ		1830 April 5	D 83 2 28 89
1831. Mar. 1 3	57 95 56 86			1830 April 7 12 15	D 153 30 18 45 18 93 18 84	Centauri π	
Argûs β.		14 Leonis ο		1830 April 6 10	R 153 30 17 13 16 64	1830 April 7 12 14 16 21	D 143 33 37 56 37 08 37 41 37 39 37 25
1830. April 5 7 12 20	D 159 1 3 56 3 61 3 94 1 58	1830 April 3	D 79 20 17 12	Argûs η		May 3	37 32
1831 Feb. 19 27	172 1 45	Argûs υ		1831 Mar 2 4	D 148 47 32 86 34 41	1830 April 10 13 15 17	R 143 33 36 25 35 69 37 95 36 14
1830 April 2 10	R 159 1 3 41 5 59	1830 April 5 12 16 20 28	D 154 17 6 50 7 33 5 24 5 58 6 51	1831 Mar 1 3	R 148 47 30 30 33 71	89 Leonis.	
1831 Feb 17 25	4 96 2 45	1831 Feb 19 28	7 11 7 19	Weisse X—987		1830 April 5	D 85 59 47 25
30 Hydræ α		1830 April 2 6 15 17	R 154 17 6.12 5 67 4 49 4 31	63 Leonis ζ		Centauri λ	
1830 April 5 7 12 20	D 97 55 33 51 32 62 35 04 32 51	1831. Feb. 17 27	9 86 8 33	1830 May 1	D 81 44 46 61	1830 April 7 12 15 16 21	D 152 4 45 92 46 50 45 27 46 29 46.28
1831 Mar. 14 17 22	35 23 34 71 33 10	29 Leonis π		11 Crateris β		May 4	47 56
		1830 April 3	D 81 8 36 87	1830. April 22 May 4	D 111 53 56 95 56 25	1830 April 6	R 152 4 46 57

91 Leonis ν		Crucis α , continued.		45 Hydræ \downarrow		Centauri α^2 , continued.	
1830. May 3	D 89° 53' 8" 31	1830 April 16	D 152° 9' 21" 25	1830 April 28	D 112° 12' 25" 18	1830. July 26	R 150° 7' 33" 29
		21	19 98			29	31 81
		22	18 50	May 4	24 42		
5 Virginis β .		28	19 99	1830 April 26	R 112 12 23 82	Aug 3	33 89
1830 April 6	D 87 16 38 23	May 3	17 26	May 3	26 29	6	32 49
		1830 April 26	R 152 9 19 75	33 Draconis γ .			
		30	19 26	67 Virginis α .		1830 July 29	D 38 29 7 24
{ 28 Crateris B A C 4015 }		May 5	21 25	1830 April 22	D 100 16 15 96	30	13 36
1830. April 7	D 122 57 46 15	29 Virginis γ^1		28	16 10	31	3 55
12	46 90	1830 April 6	D 90 30 56 18	May 4	16 60	Aug. 2	10 47
15	46 45	1830 April 7	R 90 30 58 38	1830. April 21	R 100 16 17 49	3	9 03
May 4	46 41			26	17 29	4	12 04
Centauri δ		Crucis β		May 3	17 04	B A C 6607	
1830. April 12	D 139 46 31 31	1830 April 12	D 148 45 27 32	5	21 49	1830 Sept 15	D 112 42 38 69
15	29 57	15	25 62	Centauri β		B. A C 7020, SP	
21	31 39	21	27 99	1830. July 26	D 149 32 50 82	1831 Jan 27	D 179 34 0 52
May 4	30 86	26	27 63	31	49 85	Feb 16	0 94
1830 April 13	R 139 46 30 45	30	27 06	Aug 4	50 94	1831 Jan 26	R 179 33 53 39
16	29 19	May 5	26 74	1830 July 28	R 149 32 49 40	31	58 22
22	29 24	1830 April 22	R 148 45 26 99	Aug 3	49 67	53 Aquilæ α	
4 Corvi γ		28	26 57	6	50 13		
1830. April 22	D 106 35 51 20	May 3	27 56	Centauri α^2		1830 Oct 1	D 81 34 27 06
1830 April 21	R 106 35 51 92	44 Virginis k		1830 July 28	D 150 7 32 39	8	27 86
Crucis α				30	31 77	10	25 56
1830 April 12	D 152 9 21 41	1830 May 4	D 92 53 34 40	31	32 23	12	26 16
15	20 35			Aug 4	33 06	16	27 91
						18	28 10
						19	27 25
						22	27 92
						24	27 91

53 Aquilæ α , continued		29 Capricorni		34 Aquarii α , continued		90 Aquarii ϕ , continued	
1830	R	1830	D	1830.	D	1830	D
Oct 3	81° 34' 27" 86	Aug 4	105° 52' 22" 06	Nov 1	91° 8' 32" 96	Oct 20	96° 57' 52" 04
7	26 66			7	32 67	21	49 54
9	26 98	30 Capricorni		10	32 34	23	50 93
11	29 05			13	32 14	28	52 60
17	27 33	1830	D	1830.	R	29	51 56
21	26 11	Oct 5	108 41 31 02	Oct 29	91 8 32 84	Nov 6	52 79
23	28 15	8	30 30	Nov. 6	30 03	7	51 64
6 Capricorni α^2		9	30 94	9	32 04	9	50 51
1830	D	10	30 42	11	32 17	10	50 83
Sept 14	103 3 54 85	11	30 37	12	32 34	11	50 03
21	55 70	12	29 80	36 Aquarii		12	50 33
22	55 90	16	31 13			13	50 94
1830	R	17	31 83	1830.		14	50 66
Sept 15	103 3 57 04	18	31 19	Aug. 5	99 1 4 42	15	50 98
18	55 92	19	32 13			19	50 84
23	53 46	21	32 34	33 Piscium		22	50 53
21 Capricorni		22	30 76				
		23	30 80				
		22 Aquarii β		90 Aquarii ϕ		1830	D
1830	D.	1830	D.	1830	D	Oct 3	96 39 30 91
Oct 5	108 11 20 29	Sept 14	96 18 50 28	Sept 18	96 57 50 67	5	30 65
8	21 72	47 Capricorni c^2		19	49 45	8	30 80
9	16 50			21	51 47	9	31 31
11	16 39	1830	D	22	50 73	10	29 74
12	15 69	Aug 5	100 3 20 47	23	49 68	11	30 48
16	16 41	34 Aquarii α		24	49 16	12	32 04
17	19 22			Oct 1	48 53	16	30 18
18	18 56	1830	D	3	49 14	17	31 67
19	17 47	Sept. 14	91 8 31 38	4	51 34	18	31 14
21	17 00	21	33 10	5	51 05	19	32 69
22	18 74	22	33 46	9	50 59	20	32 34
23	18 23	Oct 28	33 83	10	50 72	21	31 83
9 Aquarii				11	50 47	23	28 25
1830	D			12	51 25	Nov 6	31 80
Aug 4	104 11 21 81			16	50 32	7	30 76
				17	51 90	9	27 44
				18	51 44	10	30 66
				19	51 22	12	31 45
						14	30 69

ROYAL OBSERVATORY, CAPE OF GOOD HOPE.

CATALOGUE OF

CONCLUDED MEAN RIGHT ASCENSIONS AND NORTH
POLAR DISTANCES,

FOR 1830, JANUARY 1,

OF STARS OBSERVED IN THE YEARS

1829, 1830, AND 1831;

WITH THE ANNUAL VARIATIONS.

No	Star's Name	No of Obs of R A	Mean Year and Fraction of Year	Mean R A 1830, Jan 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1		Whole No of Obs of N P D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R				
1	B A C 5	1	1830 90	0 0 0 72	+3 068			93 10	"			"	"
2	Phoenixis	16	1829 77	0 0 45 49	3 063			136 41					
3	8 Ceti	12	1829 80	0 10 45 89	3 057			99 46					
4	B A C 81	1	1829 77	0 15 48 72	3 063			93 10					
5	Hydri	β				1	3	168 12 45 39	45 41				
	Hydri [SP]	β	99	1829 58	0 16 40 31	2 606				9	1830 56	45 06	-19 990
6	Phoenixis	α	4	1829 80	0 17 51 74	2 970		44 65					
7	12 Ceti	\dots	22	1830 81	0 21 21 96	3 057	29	133 14		29	1830 80	51 19	19 956
8	Phoenixis	λ	2	1829 84	0 23 11 59	2 909		94 53 51 19					
9	Toucanæ	β^1	2	1829 77	0 23 42 57	2 786		139 45					
10	Weisse O—467	1	1829 70	0 26 14 33	3 062			153 54					
								92 15					
11	14 Ceti	\dots	1	1830 75	0 26 49 62	3 064		91 26					
12	B A C 161	\dots	1	1829 70	0 28 45 33	3 074		87 48					
13	16 Ceti	β	15	1829 82	0 35 3 13	2 998		108 55					
14	63 Piscium	δ	2	1829 70	0 39 52 02	3 095		83 20					
15	20 Ceti	$\dots\dots$	18	1829 90	0 44 19 44	3 059	1	92 4 9 21		1	1830 75	9 21	19 669
16	Sculptoris	α	18	1829 85	0 50 24 39	2 898		120 17					
17	Phoenixis	β	18	1829 84	0 58 28 85	2 698		137 38					
18	Phoenixis	ζ	6	1829 92	1 1 13 10	2 542		146 9					
19	89 Piscium	f	1	1829 70	1 9 1 77	3 087		87 17					
20	45 Ceti	\dots	22	1829 94	1 15 31 67	2 999	3	99 3 47 44	47 19	6	1830 93	47 31	18 964
21	B A C 440	\dots	1	1829 85	1 19 28 49	3 124		82 55					
22	Phoenixis	γ	18	1829 85	1 20 58 28	2 619		134 11					
23	98 Piscium	μ	1	1830 98	1 21 17 14	3 111		84 44					
24	Phoenixis	δ	9	1829 91	1 24 9 58	2 497		139 57					
25	Eridani	α	20	1829 83	1 31 22 17	2 235	6	148 6 8 08	7 96	10	1830 31	8 03	18 471
26	B A C 511	\dots	1	1829 85	1 31 38 37	3 140		82 6					
27	106 Piscium	ν	1	1830 98	1 32 35 54	3 111		85 23					
28	52 Ceti	\dots	10	1830 02	1 36 10 31	2 770*	1	106 50 8 79	7 98	2	1830 98	8 39	19 144*
29	110 Piscium	\dots	2	1829 78	1 36 25 33	3 148		81 42					
30	Sculptoris	ϵ	5	1829 74	1 37 40 75	2 800		115 54					
31	55 Ceti	\dots	16	1830 08	1 43 4 24	2 953	1	101 10 41 79	43 42	4	1830 96	43 01	-18 050
32	Eridani	\dots	15	1829 87	1 49 19 90	2 270		142 28					
33	Hydri	α	12	1829 85	1 53 24 44	1 854		152 24					
34	65 Ceti	ϵ^1	3	1830 18	2 4 0 02	3 165		81 57					
35	Eridani	ϕ	15	1829 86	2 10 25 78	2 136		142 18					
36	68 Ceti	\dots	1	1829 65	2 10 45 56	3 021		93 45					
37	B A C 741	\dots	1	1829 85	2 15 26 22	3 185		81 4					
38	24 Arietis	\dots	1	1829 86	2 15 42 78	3 197		80 10					
39	Hydri	δ	16	1829 87	2 18 44 75	1 041		159 26					
40	Eridani	α	1	1829 65	2 20 45 02	2 199		138 28					
41	29 Arietis	\dots	1	1829 86	2 23 36 28	3 267		75 43					
42	76 Ceti	\dots	15	1829 86	2 24 1 90	2 843		106 0					
43	B A C 789	\dots	2	1830 83	2 26 4 64	3 162		83 16					
44	82 Ceti	\dots	15	1829 85	2 30 46 49	3 062		90 25					
45	B A C 826	\dots	2	1830 38	2 32 52 13	+3 211		80 11					

Observed at the Cape of Good Hope in the Years 1829, 1830, and 1831. 79

No	Star's Name.	No of Obs. of R A	Mean Year and Fraction of Year	Mean R. A. 1830, Jan 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1		Whole No of Obs of N P D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R				
46	38 Arietis	2	1829 86	^{h m s} 2 35 42 47	+3 242			78° 16' "	"			"	"
47	89 Ceti . . . π	17	1830 00	2 36 2 07	2 849	2		104 35 0 34		2	1830 98	0 34	-15 574
48	1 Eridani . . . τ ¹	1	1830 97	2 37 10 19	2 772		1	109 17 .	47 06	1	1830 97	47 06	15 511
49	43 Arietis σ	1	1829 93	2 42 7 15	3 291			75 37					
50	2 Eridani . . . τ ²	14	1829 89	2 43 19 72	2 720			111 42					
51	3 Eridani . . . η	20	1830 09	2 48 7 54	2 917	4	3	99 34 46 96	47 51	7	1830 94	47 19	14 887
52	92 Ceti . . . α			2 53 (20)		2	2	86 34 56 95	57 80	4	1830 88	57 38	14 575
53	11 Eridani . . . τ ³	14	1829 90	2 54 53 81	2 651			114 18					
54	B A C. 987 .	1	1830 01	3 2 2 43	3 278			77 36					
55	12 Eridani .	9	1829 94	3 4 51 12	2 561*			119 40					
56	16 Eridani . . . τ ⁴	19	1830 02	3 11 57 38	2 659	1	1	112 22 55 68	53 93	2	1830 98	54 81	13 414
57	5 Tauri . . . f	1	1829 93	3 21 29 99	3 293			77 39					
58	17 Eridani . . .	16	1829 92	3 22 11 24	2 966			95 40					
59	19 Eridani . . . τ ⁵	18	1829 90	3 26 16 84	2 641	3	3	112 12 29 92	30 37	6	1830 93	30 15	12 458
60	B A C. 1119	1	1830 83	3 29 49 73	3 371			74 1					
61	B A C 1125	5	1829 98	3 30 59 69	2 149			130 50					
62	23 Eridani . . . δ	19	1830 12	3 35 6 49	2 871	2	2	100 20 37 85	39 94	4	1830 95	38 89	11 243*
63	30 Tauri . . . e	1	1830 83	3 38 57 62	3 273			79 23					
64	27 Eridani . . . τ ⁶	18	1830 01	3 39 32 12	2 587	1	1	113 45 25 82	27 30	2	1830 98	26 56	10 939*
65	Piazzi III—183	2	1829 98	3 42 19 51	2 202			128 9					
66	B A C 1206 .	1	1829 93	3 43 27 62	3 402			73 11					
67	32 Eridani . . .	16	1829 90	3 45 45 48	+3 001			93 28					
68	Hydri . . . γ	1	1829 94	3 49 57 83	-1 068			164 46					
69	34 Eridani . . . γ	15	1829 89	3 50 5 99	+2 787			104 0					
70	35 Tauri λ	1	1830 01	3 51 16 16	3 309			78 0					
71	35 Eridani . . .	1	1829 97	3 52 55 50	3 028			92 2					
72	Reticuli . . . δ	7	1829 94	3 56 4 16	0 925			151 53					
73	B A C. 1272 . .	1	1830 01	3 58 15 70	3 418			73 7					
74	37 Eridani	1	1830 95	4 2 5 19	2 918			97 22					
75	38 Eridani ε ¹	22	1830 15	4 3 34 25	2 919	2	2	97 17 14 08	13 38	4	1830 96	13 73	9 750
76	48 Tauri	1	1830 98	4 6 7 73	3 382			75 2					
77	Horologi . . . α	6	1829 96	4 8 22 27	1 978			132 43					
78	* 7 Mag . . .	1	1829 87	4 9 3 64	2 156			127 39					
79	54 Tauri γ	3	1830 16	4 10 7 65	3 390			74 47					
80	Reticuli α	6	1829 96	4 12 15 16	0 741			152 54					
81	43 Eridani υ ⁵	11	1829 93	4 17 39 10	2 242			124 25					
82	*	3	1830 02	4 17 55 29	3 395			74 50					
83	78 Tauri θ ²	1	1830 01	4 18 57 94	3 403			74 31					
84	Reticuli . . . η	1	1831 07	4 20 3 91	0 608			153 47					
85	Cæli δ	11	1829 93	4 25 37 85	1 830			135 19					
86	*	1	1830 91	4 25 57 59	3 407			74 31					
87	87 Tauri α	6	1830 15	4 26 10 29	3 423			73 50					
88	52 Eridani υ ⁷	2	1829 90	4 28 56 74	2 330			120 55					
89	Doradus . . . α	10	1829 93	4 30 19 61	1 278			145 24					
90	Cæli α	18	1830 38	4 35 5 21	+1 939	2	4	132 11 32 68	32 99	6	1831 08	32 88	-7 257

80 *Mean Right Ascensions and Mean North Polar Distances of Stars,*

No	Star's Name	No of Obs of R A	Mean Year and Fraction of Year	Mean R.A. 1830, Jan 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1		Whole No of Obs of N P D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R				
91	96 Tauri .	1	1829 94	^{h m s} 4 40 1 01	^s +3 419			^{o ' "} 74 24	"			"	"
92	61 Eridani .. <i>ω</i>	16	1830 18	4 44 32 68	2 941	2	3	95 44 36 02	37 97	5	1830 96	37 19	- 6 480
93	63 Eridani .	14	1830 00	4 51 47 78	2 831		1	100 31 .	9 09	1	1830 98	9 09	5 877
94	104 Tauri . . . <i>m</i>	1	1830 01	4 57 24 43	3 542*			71 35					
95	67 Eridani .. <i>β</i>	15	1830 13	4 59 29 72	2 948	2	2	95 18 47 24	48 93	4	1831 11	48 08	5 230
96	15 Orionis . .	2	1829 94	4 59 58 51	3 423			74 38					
97	B A C 1592	1	1831 07	5 0 11 89	2 866			98 53					
98	69 Eridani ... <i>λ</i>	2	1831 08	5 1 0 93	2 864	2	4	98 58 41 67	45 64	6	1831 08	44 31	5 102
99	19 Orionis . . <i>β</i>	53	1829 86	5 6 22 23	2 876	4	2	98 24 16 62	18 25	6	1830 85	17 17	4 647
100	20 Orionis .. <i>τ</i>	12	1830 17	5 9 21 26	2 907	2	2	97 2 7 58	7 61	4	1830 96	7 59	4 393
101	6 Leporis . . . <i>λ</i>	3	1829 98	5 11 44 68	2 758			103 21					
102	28 Orionis . . <i>η</i>	10	1829 77	5 15 55 94	3 009			92 34					
103	117 Tauri	1	1830 01	5 18 9 88	3 472			72 55					
104	9 Leporis .. <i>β</i>	12	1829 91	5 20 57 72	2 565	2	3	110 54 5 20	4 24	5	1831 08	4 63	3 397
105	34 Orionis . . . <i>δ</i>	45	1829 85	5 23 19 42*	3 058	1	1	90 25 58 82	58 55	2	1830 98	58 69	3 194
106	10 Leporis ..			5 23 (50)		1		110 59 44 98		1	1831 09	44 98	3 148
107	11 Leporis .. <i>α</i>	13	1830 10	5 25 14 03	2 640	2	2	107 57 0 79	2 02	4	1831 11	1 41	3 029
108	122 Tauri . . .	3	1830 36	5 27 12 02	3 471			73 4					
109	123 Tauri <i>ζ</i>	1	1829 94	5 27 29 27	3 577			68 58					
110	46 Orionis . . . <i>ε</i>	28	1829 50	5 27 35 35	3 038			91 19					
111	48 Orionis <i>σ</i>	6	1829 93	5 30 12 87	3 005			92 42					
112	126 Tauri . . .	2	1830 54	5 31 28 44	3 459			73 34					
113	50 Orionis . . . <i>ζ</i>	41	1829 70	5 32 10 96	3 021			92 2					
114	Columbæ . . . <i>α</i>	21	1830 00	5 33 29 54	2 167	6		124 10 11 21		6	1831 13	11 21	2 313
115	130 Tauri	2	1830 54	5 37 31 52	3 491			72 20					
116	Columbæ .. <i>μ</i>	8	1829 88	5 39 40 96	2 224			122 23					
117	53 Orionis . . . <i>κ</i>	35	1829 74	5 39 41 68	2 840	2	2	99 44 11 96	13 54	4	1831 16	12 75	1 774
118	Doradus .. <i>δ</i>	1	1831 07	5 44 28 23	0 102			155 48					
119	Columbæ . . . <i>β</i>	5	1830 65	5 44 58 11	2 105	8		125 50 13 95		8	1831 08	13 95	1 314
120	58 Orionis .. . <i>α</i>	96	1830 08	5 45 58 19	3 241	7	6	82 37 57 26	57 50	13	1830 59	57 37	- 1 226
121	Columbæ . . . <i>γ</i>	3	1829 97	5 51 30 67	2 122			125 18					
122	18 Leporis . . . <i>θ</i>	9	1829 87	5 58 27 68	2 712			104 56					
123	*	1	1830 02	6 3 41 96	3 549			70 11±					
124	71 Orionis . . .	1	1829 94	6 4 50 80	3 533			70 48					
125	5 Monocerotis .	9	1829 84	6 6 33 88	2 922			96 14					
126	1 Canis Majoris <i>ζ</i>	8	1829 69	6 13 47 23	2 298	2	2	119 59 35 73	36 10	4	1831 16	35 91	+ 1 205
127	2 Canis Majoris <i>β</i>	21	1829 54	6 15 12 85	2 638	12	2	107 52 40 76	41 29	4	1831 14	41 03	1 329
128	Argus <i>α</i>	33	1830 01	6 20 10 57	1 327	0	10	142 36 20 23	20 68	20	1830 70	20 45	1 762
129	B A C 2116 .	3	1830 37	6 22 23 21	3 497			72 6					
130	24 Geminorum . <i>γ</i>	1	1830 09	6 27 53 49	3 462			73 28					
131	26 Geminorum .	2	1830 06	6 32 30 30	3 493			72 12					
132	Argus <i>γ</i>	16	1829 67	6 32 33 56	1 832	2	2	133 3 4 17	3 51	4	1831 14	3 84	2 838
133	9 Canis Majoris <i>α</i>	39	1829 60	6 37 39 29	2 643*	17	19	106 29 23 66	23 98	36	1830 82	23 83	+ 4 418*
134	33 Geminorum ..	1	1829 94	6 40 2 26	3 455			73 37					
135	13 Canis Majoris <i>κ</i>	8	1829 83	6 43 29 40	+2 238			122 19					

No	Star's Name	No of Obs of R.A	Mean Year and Fraction of Year	Mean R A 1830, Jan. 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan. 1		Whole No of Obs of N P D.	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R				
136	B A C 2265 .	2	1830 51	6 ^h 46 ^m 23 ^s 13	+3 492			72 ^o 3 ['] "	"			"	"
137	B A C 2280.	1	1830 02	6 50 4 57	3 446			73 50					
138	21 Canis Majoris. <i>ε</i>	24	1829 61	6 51 56 70	2 354			118 45					
139	22 Canis Majoris	10	1829 79	6 54 56 82	2 387	2	2	117 41 49 64	46 12	4	1831 17	47 88	+ 4 759
140	23 Canis Majoris <i>γ</i>	3	1829 97	6 56 3 98	2 711			105 23					
141	45 Geminorum .	1	1830 02	6 58 36 65	3 444			73 48					
142	* 6 Mag. .	1	1830 24	6 58 42 09	3 502			71 27					
143	25 Canis Majoris <i>δ</i>	12	1829 87	7 1 28 75	2 436			116 8					
144	54 Geminorum <i>λ</i>	4	1830 00	7 8 19 13	3 455			73 10					
145	Argûs <i>π</i>	17	1829 97	7 11 8 30	2 116	3	3	126 47 49 04	47 27	6	1831 12	48 16	6 121
146	31 Canis Majoris <i>η</i>	15	1829 64	7 17 22 34	2 370	2	2	118 58 35 71	35 02	4	1831 15	35 36	6 638
147	Argûs <i>σ</i>	8	1829 97	7 23 50 21	1 906			132 58					
148	68 Geminorum .	3	1830 07	7 23 53 89	3 430			73 49					
149	74 Geminorum <i>f</i>	1	1830 10	7 29 38 89	3 471			71 57					
150	10 Canis Minoris <i>α</i>	53	1830 09	7 30 23 86	3 143*	11	6	84 20 45 79	47 49	17	1830 72	46 39	8 682*
151	Puppis <i>c</i>	2	1830 15	7 39 11 87	2 135			127 34					
152	Puppis. . . . <i>P</i>	3	1830 15	7 44 3 55	1 827			135 57					
153	1 Cancri	1	1830 10	7 47 19 59	3 415			73 46					
154	B A C 2649 . .	1	1830 99	7 48 49 04	3 431			73 2					
155	5 Cancri	2	1830 13	7 51 48 19	3 427			73 5					
156	Argûs <i>χ</i>	14	1829 74	7 52 27 10	1 530	2	2	142 31 46 67	45 22	4	1831 14	45 94	9 445
157	Argûs <i>ζ</i>	17	1829 61	7 57 36 58	2 108	3	2	129 31 45 59	40 57	5	1831 17	43 58	9 840
158	Argûs <i>γ</i>	5	1829 59	8 4 17 44	1 848			136 50					
159	Puppis <i>q</i>	4	1830 15	8 12 11 69	2 250			126 8					
160	Argûs <i>ι</i>	17	1829 70	8 19 0 78	1 243	3	3	148 57 53 40	52 32	6	1830 85	52 86	11 426
161	29 Cancri	1	1830 25	8 19 7 40	3 357			75 14					
162	Volantis <i>β</i>	1	1830 15	8 23 51 49	0 686			155 34					
163	{Mali <i>b</i> } Pixidis Nauticæ <i>β</i>	4	1830 15	8 33 26 99	2 342			124 43					
164	B A C 2941	1	1830 09	8 34 4 80	2 201			129 40					
165	{Mali <i>a</i> } Pixidis Nauticæ <i>α</i>	4	1830 15	8 36 45 82	2 406			122 35					
166	50 Cancri <i>A</i> ²	1	1830 18	8 37 36 45	3 301			77 16					
167	Argûs <i>δ</i>	16	1829 61	8 40 0 37	1 655	4	4	144 5 18 49	18 11	8	1830 70	18 30	12 884
168	65 Cancri <i>a</i>	1	1830 18	8 49 10 84	3 287			77 29					
169	Carinæ <i>b</i> ¹	2	1830 12	8 52 48 36	1 474			148 35					
170	Carinæ <i>b</i> ²	1	1830 09	8 55 13 50	1 498			148 26					
171	76 Cancri <i>κ</i>	1	1830 18	8 58 31 89	3 259			78 39					
172	Argûs <i>λ</i>	14	1829 42	9 1 44 84	2 201	4	4	132 44 59 19	57 71	8	1830 71	58 45	14 280
173	B A C 3164	1	1830 25	9 8 37 57	3 265			77 47					
174	Argûs <i>β</i>	14	1829 33	9 11 17 92	0 729	6	4	159 1 2 64	4 10	10	1830 62	3 23	14 855
175	Argûs <i>ι</i>	1	1829 38	9 12 32 00	1 609			148 34					
176	{Mali <i>h</i> } Pixidis Nauticæ <i>θ</i>	3	1830 18	9 13 58 35	2 650			115 15					
177	Argûs <i>κ</i>	11	1829 33	9 16 51 04	1 854			144 17					
178	30 Hydræ <i>α</i>	12	1829 70	9 19 13 98	2 948	9	8	97 55 34 05	34 15	17	1830 83	34 10	15 310
179	6 Leonis <i>h</i>	1	1830 25	9 22 50 61	3 224			79 32					
180	14 Leonis <i>o</i>	1	1830 25	9 32 4 08	+3 219	1		79 20 17 12		1	1830 25	17 12	+16 010

82 *Mean Right Ascensions and Mean North Polar Distances of Stars,*

No	Star's Name	No of Obs of R A	Mean Year and Fraction of Year	Mean R A 1830, Jan 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1		Whole No. of Obs of N P D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R				
181	Argûs ...	v	14	1829 34	9 42 50.92	+1 505	7 6	154° 17' 6" 49	6" 46	13	1830 55	6" 48	+16" 560
182	29 Leonis .	π	1	1830 10	9 51 13.41	3 179	1	81 8 36 87		1	1830 25	36 87	16 961
183	31 Leonis	A	2	1830 18	9 58 52.57	3 197		79 10					
184	32 Leonis	α	3	1829 60	9 59 18.62	3 221	2 1	77 12 18 42	17 86	3	1830 28	18 23	17 327
185	16 Sextantis	.	1	1830 26	10 0 19.88	3 150		83 0					
186	B.A.C. 3538		1	1830 33	10 13 15.96	3 172		80 11					
187	43 Leonis .		1	1830 26	10 14 6.31	3 145		82 36					
188	44 Leonis		1	1830 18	10 16 17.39	3 167		80 21					
189	32 Sextantis		1	1830 18	10 23 28.33	3 121		84 29					
190	49 Leonis .		1	1830 10	10 26 6.33	3 157		80 28					
191	35 Sextantis . .		1	1830 18	10 34 31.21	3 116		84 22					
192	Argûs . . .	θ	14	1829 34	10 36 54.62	2 117	3 2	153 30 18 74	16.89	5	1830 27	18 00	18 739
193	37 Sextantis		1	1830 33	10 37 14.45	3 128		82 44					
194	Argûs .	η	3	1829 29	10 38 28.95	2 300	2 2	148 47 33 64	32 01	4	1831 17	32 82	18 789
195	Argûs ..	μ	3	1829 35	10 39 28.69	2 548		138 31					
196	7 Crateris ...	α	13	1829 35	10 51 29.81	2 905*		107 24					
197	59 Leonis	c	2	1830 22	10 51 55.81	3 116		82 59					
198	Weisse X—987				10 53 (40)		1	79 54 49 91		1	1830 26	49 91	19 210
199	63 Leonis	χ			10 56 (10)		1	81 44 46 61		1	1830 33	46 61	19 272
200	65 Leonis . .	p ¹	3	1830 18	10 58 13.82	3 086		87 7					
201	11 Crateris . .	β	9	1829 37	11 3 18.34	2 937	2 2	111 53 56 60	57.27	4	1830 32	56 94	19 433
202	75 Leonis .		1	1830 18	11 8 32.40	3 083		87 3					
203	77 Leonis .	σ			11 12 (20)		1	83 2 28 89		1	1830 26	28 89	19 611
204	Centauri .	π	11	1829 38	11 13 16.88	2 702	6 4	143 33 37 34	36 51	10	1830 27	37 00	19 627
205	79 Leonis		1	1830 18	11 15 18.91	3 079		87 39					
206	80 Leonis		1	1830 11	11 17 5.70	3 089		85 12					
207	B.A.C. 3901		1	1830 33	11 19 12.42	3 065		90 46					
208	89 Leonis				11 25 (40)		1	85 59 47 25		1	1830 26	47 25	19 818
209	Centauri .	λ	14	1829 35	11 27 58.86	2 717	6 1	152 4 46 31	46.57	7	1830 29	46 34	19 847
210	91 Leonis . .	v			11 28 (10)		1	89 53 8 31		1	1830 33	8 31	19 850
211	94 Leonis ..	β	1	1829 27	11 40 22.87	3 064*		74 29					
212	5 Virginis .	β			11 41 (50)		1	87 16 38 23		1	1830 26	38 23	19 980
213	B.A.C. 4015		10	1829 37	11 44 20.33	3 009	4	122 57 46 48		4	1830 29	46 48	19 996
214	B.A.C. 4054 ...		2	1830 22	11 52 19.62	3 067		90 49					
215	B.A.C. 4077 .		2	1830 22	11 57 17.70	3 067		92 11					
216	B.A.C. 4085 .		10	1829 36	11 59 19.15	3 063		139 43					
217	Centauri .	δ	18	1829 34	11 59 35.09	3 065	4 3	139 46 30 78	29 63	7	1830 30	30 29	20 043
218	Crucis .	δ	11	1829 32	12 6 9.99	3 125		147 48					
219	4 Corvi .	γ	8	1829 36	12 7 4.50	3 080	1 1	106 35 51 20	51.92	2	1830 30	51 56	20 033
220	Chamæleontis	β	9	1829 68	12 8 32.89	3 313		168 22					
221	13 Virginis .		1	1830 33	12 9 57.46	3 068		89 50					
222	B.A.C. 4172		1	1830 26	12 14 31.48	3 074		94 2					
223	Crucis .	α	1	1829 82	12 17 12.66	3 258	7 3	152 9 19 82	20 09	10	1830 31	19 90	+19 986
224	7 Corvi	δ	1	1829 39	12 21 4.74	3 102		105 34					
225	Crucis . . .	γ	3	1829 33	12 21 47.11	+3 257		146 9					

No	Star's Name	No. of Obs of R.A.	Mean Year and Fraction of Year.	Mean R A 1830, Jan 1.	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1.		Whole No. of Obs of N P D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R.				
226	B A C 4225 ..	1	1830 26	^h 12 ^m 22 ^s 54 67	+ 3 078			94 7	"			"	"
227	9 Corvi β	15	1829 36	12 25 28 33	3 129			112 27					
228	B A C 4255	2	1830 30	12 29 59 17	3 079			93 26					
229	Centauri . γ	16	1829 35	12 32 10 85	3 276			138 1					
230	29 Virginis . . γ ¹	1	1830 19	12 33 2 97	3 022*	1	1	90 30 56 18	58 38	2	1830 26	57 28	+ 19 835
231	Crucis . . β	17	1829 33	12 37 50 98	3 430	6	3	148 45 27 06	27 04	9	1830 31	27 05	19 770
232	B A C 4294	1	1830 26	12 38 46 72	3 089			95 22					
233	44 Virginis . . δ			12 50 (50)		1		92 53 34 40		1	1830 34	34 40	19 550
234	45 Hydise . . ψ	14	1829 38	12 59 54 90	3 209	2	2	112 12 24 80	25 06	4	1830 33	24 93	19 362
235	Centauri . . δ	21	1829 38	13 11 4 19	3 362			125 49					
236	* . .	1	1829 33	13 12 2 26	3 366			125 49±					
237	67 Virginis . . α	45	1829 91	13 16 14 86	3 147	3	4	100 16 16 22	18 33	7	1830 32	17 42	18 944
238	77 Virginis . .	1	1830 27	13 24 32 25	3 125			96 45					
239	Centauri . . ε	16	1829 33	13 29 10 37	3 731			142 36					
240	Centauri . . ζ	17	1829 34	13 44 58 75	3 690			136 27					
241	B A C 4647 .	1	1830 34	13 46 3 82	3 144			97 13					
242	B A C 4666	2	1830 30	13 51 7 86	3 148			97 20					
243	Centauri . . β	15	1829 32	13 51 54 34	4 134	3	3	149 32 50 54	49 73	6	1830 58	50 14	17 700
244	B A C 4680 .	1	1830 34	13 55 21 81	3 164			98 26					
245	5 Centauri . . θ	20	1829 41	13 56 42 46	3 491*			125 32					
246	100 Virginis . . λ	14	1829 41	14 9 55 52	3 228			102 35					
247	B A C 4807	1	1829 32	14 23 23 34	3 757			131 21					
248	Centauri . . η	13	1829 35	14 24 44 93	3 764			131 24					
249	Centauri . . α ²	11	1829 36	14 28 7 47	4 000*	4	4	150 7 32 36	32 87	8	1830 58	32 62	+ 15 165*
250	Lupi . . α	7	1829 38	14 30 39 94	3 933			136 39					
251	9 Libræ . . α	20	1829 39	14 41 29 29	3 305			105 20					
252	20 Libræ . .	14	1829 45	14 54 8 29	3 490			114 36					
253	Trianguli Aus γ	13	1829 34	15 3 10 01	5 444			158 2					
254	27 Libræ . . β	18	1829 44	15 7 52 19	3 218			98 45					
255	Lupi . . γ	11	1829 36	15 23 50 55	3 957			130 35					
256	Trianguli Aus β	10	1829 34	15 40 14 58	5 208			152 53					
257	46 Libræ . . θ	2	1830 50	15 44 9 44	3 390			106 13					
258	7 Scorpi . . δ	20	1829 44	15 50 17 67	3 527			112 8					
259	49 Libræ . .	3	1829 90	15 50 47 84	3 342*			106 2					
260	8 Scorpi . . β	24	1829 48	15 55 33 86	3 469			109 20					
261	B A C 5330	1	1829 61	15 55 34 86	3 469			109 20					
262	14 Scorpi . . γ	1	1829 60	16 2 7 53	3 469			109 1					
263	1 Ophiuchi . . δ	29	1829 47	16 5 26 66	3 135			93 15					
264	2 Ophiuchi . . ε	24	1829 49	16 9 20 03	3 156			94 16					
265	4 Ophiuchi . . ψ	6	1829 57	16 14 10 00	+ 3 495			109 38					

No 249, The proper motions — 0^s 470 in R.A. , — 0^s 83 in N P D from B A C have been applied to the Precession in R A and N P D as given in the A S C

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No	Star's Name	No of Obs of R A	Mean Year and Fraction of Year	Mean R A 1830, Jan 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1		Whole No of Obs of N P D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R				
266	7 Ophiuchi . α	1	1830 50	16 17 10 83	+3 461			108° 4' "	"			"	"
267	21 Scorpii α	43	1829 73	16 18 59 78	3 659			116 3					
268	8 Ophiuchi ϕ	4	1829 79	16 21 25 01	3 422			106 14					
269	23 Scorpii . τ	10	1829 59	16 25 18 75	3 715			117 51					
270	Trianguli Aus α	14	1829 42	16 30 44 62	6 239			158 42					
271	{ B A C 5579 } 24 Scorpii	1	1830 50	16 31 45 08	3 456			107 24					
272	26 Scorpii ϵ	16	1829 45	16 39 9 94	3 870*			123 59					
273	B A C 5700	1	1830 58	16 47 5 11	3 512			109 16					
274	B A C 5712 .	3	1830 23	16 49 50 96	3 481			107 58					
275	Octantis σ	10	1829 36	16 55 3 70	101 071			179 15					
276	35 Ophiuchi η	20	1829 48	17 0 38 08	3 426			105 30					
277	B A C 5839	1	1829 60	17 10 0 09	3 481			107 34					
278	Aræ . γ	9	1829 61	17 11 6 39	5 019			146 12					
279	Aræ . α	18	1829 50	17 18 42 87*	4 620			139 44					
280	35 Scorpii λ	13	1829 50	17 22 4 38	4 060			126 58					
281	Scorpii . θ	15	1829 51	17 25 6 75	4 294			132 53					
282	55 Serpentis . . ξ	1	1829 68	17 27 51 56	3 430			105 17					
283	Scorpii κ	16	1829 51	17 30 44 02	4 139			128 56					
284	Scorpii ι	15	1829 47	17 35 42 03	4 185			130 3					
285	64 Ophiuchi ν	3	1829 67	17 49 40 33	3 297			99 45					
286	33 Draconis γ			17 52 (40)		6		38 29 9 28		6	1830 58	9 28	+0 642
287	Aræ . θ	2	1829 68	17 53 24 08	4 665			140 5					
288	13 Sagittarii μ	14	1829 59	18 3 35 92	3 583			111 6					
289	B A C 6195 .	1	1829 61	18 7 30 28	3 515			108 31					
290	20 Sagittarii ϵ	20	1829 53	18 12 53 27	3 983			124 27					
291	21 Sagittarii	1	1830 58	18 15 13 56	3 570			110 37					
292	B A C 6267	1	1829 68	18 18 1 48	3 495			107 54					
293	Telescopii δ^1	4	1829 67	18 19 9 65	4 448			136 1					
294	Telescopii δ^2	5	1829 67	18 19 27 47	4 440			135 52					
295	Pavonis ζ	5	1829 66	18 23 8 22	7 054			161 33					
296	B A C 6340	1	1829 68	18 27 59 26	3 483			107 22					
297	2 Aquilæ .	3	1829 69	18 32 58 01	3 282			99 12					
298	27 Sagittarii ϕ	6	1829 66	18 35 2 07	3 745			117 9					
299	29 Sagittarii	4	1830 34	18 39 34 92	3 560			110 31					
300	34 Sagittarii σ	27	1829 55	18 44 43 24	3 722			116 30					
301	38 Sagittarii ζ	20	1829 62	18 51 47 43	3 823			120 7					
302	40 Sagittarii τ	2	1829 70	18 56 19 33	3 755			117 55					
303	16 Aquilæ λ	24	1829 55	18 57 13 59	3 184			95 8					
304	41 Sagittarii π	1	1829 71	18 59 39 01	3 571			111 17					
305	20 Aquilæ	5	1829 66	19 3 27 42	3 254			98 13					
306	{ Sagittarii β^1 } (1st Star)	17	1829 65	19 10 24 03	4 331			134 46					
307	B A C 6607			19 10 (30)		1		112 42 38 69		1	1830 70	38 69	-6 064
308	44 Sagittarii . ϵ^1	1	1829 76	19 11 48 56	3 485			108 10					
309	45 Sagittarii ϵ^2	1	1830 58	19 11 55 60	3 496			108 37					
310	Sagittarii α	2	1829 70	19 12 5 78	+4 170			130 55					

Observed at the Cape of Good Hope, in the Years 1829, 1830, and 1831. 85

No	Star's Name	No of Obs of R A	Mean Year and Fraction of Year	Mean R A 1830, Jan 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1		Whole No of Obs of N P D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R				
311	30 Aquilæ . . . δ	3	1829 75	19 16 55 60	+3 007			87 13	"			"	"
312	B A C 6658 . . .	1	1830 51	19 18 11 57	3 494			108 42					
313	B A C 7020 . . .	10	1829 71	19 26 13 29	167 172	2	2	179 33 60 73	55 81	4	1831 09	58 27	-7 363
314	B A C 6707 . . .	1	1830 51	19 26 31 16	3 501			109 13					
315	39 Aquilæ . . . ζ	14	1829 65	19 27 44 61	3 229			97 24					
316	54 Sagittarii . . . e ¹	1	1829 65	19 30 58 76	3 437			106 40					
317	55 Sagittarii . . . e ²	13	1829 64	19 32 47 42	3 432			106 31					
318	50 Aquilæ . . . γ	8	1830 08	19 38 10 66	2 849			79 48					
319	57 Sagittarii . . .	1	1830 58	19 42 18 64	3 494			109 28					
320	53 Aquilæ . . . α	80	1830 13	19 42 29 30	2 924*	9	7	81 34 27 30	27 45	16	1830 78	27 37	8 667
321	59 Sagittarii . . . b	3	1829 71	19 46 30 21	3 693			117 37					
322	60 Aquilæ . . . β	9	1830 04	19 46 57 81	2 943			84 1					
323	62 Sagittarii . . . c	17	1829 67	19 52 11 68	3 700			118 10					
324	63 Sagittarii . . .	1	1829 61	19 52 26 87	3 364			104 6					
325	65 Aquilæ θ	17	1829 66	20 2 31 90	3 095			91 19					
326	6 Capricorni . . . α ²	21	1829 64	20 8 37 00	3 331	3	3	103 3 55 48	55 47	6	1830 71	55 48	10 667
327	7 Capricorni . . . σ	1	1830 81	20 9 34 72	3 471			109 38					
328	9 Capricorni . . . β	11	1829 84	20 11 27 15	3 375			105 19					
329	Pavonis α	10	1829 59	20 12 8 66	4 811			147 16					
330	10 Capricorni . . . π	9	1829 82	20 17 34 97	3 443			108 46					
331	11 Capricorni . . . ε	1	1830 81	20 19 9 23	3 432			108 22					
332	69 Aquilæ . . .	9	1829 71	20 20 45 69	3 134			93 27					
333	B A C 7078 . . .	1	1830 59	20 22 53 50	3 404			107 11					
334	B A C 7087 . . .	1	1829 61	20 24 43 40	3 343			104 18					
335	Indi α	22	1829 61	20 25 34 59	4 257			137 53					
336	B A C 7097 . . .	2	1830 55	20 25 54 63	3 399			107 6					
337	13 Capricorni . . . τ ¹	1	1830 66	20 27 48 89	3 369			105 44					
338	Pavonis β	17	1829 64	20 29 31 94	5 546			156 48					
339	B A C 7145 . . .	2	1830 55	20 30 58 91	3 385			106 43					
340	16 Capricorni . . . ψ	4	1829 72	20 36 1 01	3 572			115 52					
341	2 Aquarii s	1	1829 84	20 38 28 05	3 252			100 7					
342	Microscopi . . . α	1	1829 73	20 39 19 69	3 771			124 24					
343	B A C 7209 . . .	2	1830 62	20 39 41 40	3 414			108 39					
344	Indi β	15	1829 67	20 41 27 53	4 768			149 5					
345	7 Aquarii	1	1829 62	20 47 42 26	3 249			100 20					
346	21 Capricorni . . .	9	1830 79	20 51 17 22	3 390	12		108 11 18 02		12	1830 79	18 02	13 623
347	9 Aquarii	1	1829 61	20 51 45 71	3 315	1		104 11 21 81		1	1830 59	21 81	13 654
348	22 Capricorni . . . η	22	1829 70	20 54 43 15	3 430			110 31					
349	13 Aquarii γ	22	1829 70	21 0 19 60	3 270			102 3					
350	29 Capricorni . . .	12	1829 81	21 6 19 77	3 329	1		105 52 22 06		1	1830 59	22 06	14 558
351	30 Capricorni . . .	11	1830 78	21 8 24 67	3 376	13		108 41 31 00		13	1830 79	31 00	-14 683
352	B A C 7406 . . .	1	1829 62	21 12 10 65	4 496			147 58					
353	Pavonis γ	9	1829 67	21 12 16 35	5 086			156 8					
354	18 Aquarii	1	1829 69	21 14 53 66	3 281			103 36					
355	19 Aquarii	1	1829 62	21 16 4 24	+3 230			100 28					

86 *Mean Right Ascensions and Mean North Polar Distances of Stars,*

No.	Star's Name	No of Obs of R A	Mean Year and Fraction of Year	Mean R A 1830, Jan 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1.		Whole No of Obs of N P D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D
						D	R	D	R				
356	34 Capricorni .	ζ	15	1829 71	21 16 56 89	+3 441		113 8 "	"			"	"
357	22 Aquarii .	β	16	1829 71	21 22 36 29	3 162	1	96 18 50 28		1	1830 70	50 28	-15 499
358	23 Aquarii .	ξ	1	1829 62	21 28 41 67	3 192		98 37					
359	40 Capricorni	γ	11	1829 68	21 30 39 71	3 322		107 25					
360	42 Capricorni		1	1829 69	21 32 17 68	3 280		104 48					
361	46 Capricorni	c ¹	1	1829 69	21 35 55 97	3 205		99 51					
362	47 Capricorni	c ²	2	1830 22	21 37 11 74	3 206	1	100 3 20 47		1	1830 59	20 47	16 276
363	48 Capricorni	λ	1	1829 84	21 37 22 67	3 236		102 9					
364	49 Capricorni	δ	9	1829 68	21 37 38 91	3 304		106 54					
365	Gruis .	γ	8	1829 69	21 43 36 51	3 657		128 10					
366	31 Aquarii	ο	2	1829 76	21 54 30 93	3 104		92 58					
367	34 Aquarii	α	10	1830 16	21 57 3 01	3 082	8 5	91 8 32 74	31 88	13	1830 82	32 41	17 227
368	33 Aquarii	ι	1	1829 84	21 57 14 93	3 247		104 41					
369	Gruis .	α	2	1829 69	21 57 28 47	3 818		137 47					
370	36 Aquarii		2	1830 22	22 0 27 30	3 174	1	99 1 4 42		1	1830 59	4 42	17 375
371	37 Aquarii	e ¹	1	1829 62	22 1 27 03	3 204		101 39					
372	38 Aquarii	e ²	1	1830 67	22 1 31 88	3 213		102 24					
373	B A C 7726		1	1829 70	22 1 41 60	3 127		95 6					
374	Toucanæ .	α	6	1829 71	22 6 46 50	4 216		151 6					
375	42 Aquarii		3	1830 72	22 7 41 40	3 221		103 40					
376	43 Aquarii	δ	2	1829 62	22 7 51 40	3 163		98 38					
377	B A C 7774 .		1	1830 59	22 7 53 70	3 177		99 53					
378	48 Aquarii .	γ	7	1829 69	22 12 52 31	3 092		92 14					
379	B A C 7804		1	1829 62	22 14 37 07	3 152		98 3					
380	51 Aquarii		1	1829 70	22 15 15 19	3 127		95 42					
381	55 Aquarii .	ζ	10	1829 74	22 20 4 56	3 077		90 53					
382	62 Aquarii .	η	8	1829 81	22 26 37 18	3 077		90 59					
383	63 Aquarii	κ	1	1829 70	22 28 56 93	3 114		95 6					
384	Gruis .	β	14	1829 73	22 32 28 57	3 617		137 46					
385	67 Aquarii		2	1830 18	22 34 21 34	3 135		97 51					
386	Gruis	ι	11	1829 76	22 38 14 28	3 670		142 12					
387	Lalande 44564		1	1830 82	22 38 30 19	3 130		97 37					
388	73 Aquarii .	λ	14	1829 75	22 43 44 43	3 133		98 29					
389	76 Aquarii .	δ	7	1829 70	22 45 37 22	3 196		106 43					
390	B A C 7986		1	1829 77	22 46 22 02	3 112		95 53					
391	24 Piscis Aust	α	20	1829 75	22 48 14 25	3 311		120 31					
392	3 Piscium		1	1829 62	22 51 54 79	3 073		90 43					
393	81 Aquarii		1	1830 82	22 52 33 44	3 122		97 58					
394	B A C 8019		1	1829 70	22 53 4 57	3 050		87 23					
395	83 Aquarii .	h ¹	1	1829 85	22 56 17 49	3 124		98 36					
396	84 Aquarii	h ²	1	1829 85	22 56 27 49	3 124		98 40					
397	Gruis .	ι	14	1829 76	23 0 42 12	3 424		136 10					
398	89 Aquarii .	c ³	2	1829 84	23 0 49 49	3 216		113 23					
399	90 Aquarii	φ	18	1830 52	23 5 31 00	3 106	34	96 57 50 76		34	1830 80	50 76	-19 479
400	Toucanæ	γ	14	1829 74	23 7 26 97	+3 577		149 10					

Observed at the Cape of Good Hope, in the Years 1829, 1830, and 1831. 87

No	Star's Name	No of Obs of R A	Mean Year and Fraction of Year	Mean R A 1830, Jan 1	Annual Variation in R A	No of Obs of N P D		Mean N P D 1830, Jan 1		Whole No of Obs of N.P.D	Mean Year and Fraction of Year	Con- cluded Seconds of N P D	Annual Variation in N P D.
						D	R	D	R				
401	93 Aquarii . . . ψ^2	2	1829 84	^{h m s} 23 9 3 92	+3 121			100° 6' "	"			"	"
402	96 Aquarii . .	1	1829 70	23 10 34 90	3 098			96 3					
403	B A C 8129	1	1830 82	23 11 55 04	3 101			96 50					
404	98 Aquarii . . . δ^1	16	1829 79	23 14 1 94	3 170			111 2					
405	B A C. 8152 .	1	1829 70	23 14 48 58	3 071			90 38					
406	99 Aquarii . . . δ^2	7	1829 83	23 17 6 44	3 166			111 34					
407	8 Piscium . . . π	1	1829 85	23 18 13 15	3 067			89 40					
408	B A C 8184 .	2	1830 26	23 20 44 70	3 090			95 27					
409	12 Piscium	1	1829 70	23 20 47 21	3 076			91 58					
410	13 Piscium	1	1829 77	23 23 14 37	3 076			92 1					
411	Sculptoris β	15	1829 77	23 23 49 94	3 237			128 45					
412	14 Piscium .	3	1830 15	23 25 24 61	3 076			92 11					
413	B A C 8214	1	1829 70	23 26 45 66	3 097			98 24					
414	103 Aquarii . . . A^1	19	1829 78	23 32 45 04	3 123			108 58					
415	106 Aquarii . . . i^1	7	1829 84	23 35 22 64	3 118			109 13					
416	20 Piscium .	4	1829 96	23 39 12 17	3 076			93 42					
417	Sculptoris δ	15	1829 75	23 40 3 39	3 133			119 4					
418	Octantis . . . γ^2	1	1829 87	23 47 55 76	3 651			173 7					
419	27 Piscium . .	5	1830 04	23 49 58 17	3 073			94 30					
420	Toucanæ . . . ϵ	11	1829 73	23 51 1 05	3 189			156 31					
421	29 Piscium .	3	1829 84	23 53 6 81	3 071			93 58					
422	2 Ceti . . .	7	1829 79	23 55 1 40	3 078			108 17					
423	B A C 8365	1	1829 77	23 56 20 95	3 069			91 27					
424	33 Piscium . . .	15	1830 74	23 56 38 07	3 070	20		96 39 30 84		20	1830 80	30 84	-20 040
425	4 Ceti . . .	2	1830 22	23 59 1 85	+3 068			93 30					

ROYAL OBSERVATORY, CAPE OF GOOD HOPE.

RIGHT ASCENSIONS AND NORTH POLAR DISTANCES

OF

THE SUN,

THE MOON,

MERCURY, .

VENUS,

MARS,

JUPITER,

SATURN,

URANUS,

AND THE COMET OF 1830,

DEDUCED FROM THE OBSERVATIONS

MADE IN THE YEARS

1829, 1830, AND 1831.

ROYAL ASTRON. SOC. VOL. XIX.

N

*Right Ascensions and North Polar Distances of the Sun, observed at the
Cape of Good Hope.*

Year and Civil Day	R A of Centre.	Limb observed in N P D	N P D of Limb	N P D of Centre	Parallax used in the Reductions
1829.					
April 11	h m s 1 18 38 63				
13	1 25 59 32				
14	1 29 41 20				
15	1 33 21 41				
20	1 51 53 59				
21	1 55 36 89				
22	1 59 21 07				
25	2 10 35 97				
26	2 14 21 86				
30	2 29 30 81				
May 1	2 33 19 66				
2	2 37 8 64				
6	2 52 30 97				
11	3 11 56 36				
12	3 15 50 77				
13	3 19 46 58				
14	3 23 42 26				
15	3 27 38 14				
16	3 31 35 51				
18	3 39 31 07				
19	3 43 29 34				
21	3 51 28 34				
22	3 55 28 81				
23	3 59 29 67				
June 16	5 37 57 37				
18	5 46 16 29				
July 6	7 0 53 30				
7	7 4 59 71				
8	7 9 5 89				
11	7 21 21 88				
13	7 29 30 35				
14	7 33 33 85				
15	7 37 37 09				
16	7 41 39 38				
21	8 1 44 10				
22	8 5 43 41				
23	8 9 42 27				
24	8 13 40 50				
25	8 17 38 26				
27	8 25 31 91				
Aug. 7	9 8 14 07				
8	9 12 3 23				

Year and Civil Day	R.A. of Centre	Limb observed in N P D	N P D of Limb	N.P.D. of Centre	Parallax used in the Reductions.
1829.	h m s				
Aug. 15	9 38 31 67				
17	9 46 0 50				
19	9 53 27 28				
26	10 19 17 47				
27	10 22 57 32				
28	10 26 36 49				
29	10 30 15 58				
Sept 2	10 44 48 97				
3	10 48 26 29				
4	10 52 3 47				
7	11 2 53 25				
13	11 24 28 37				
14	11 28 3 57				
15	11 31 38 92				
16	11 35 14 54				
17	11 38 50 11				
18	11 42 25 32				
19	11 46 0 70				
20	11 49 36 05				
21	11 53 11 47				
22	11 56 47 15				
24	12 3 58 88				
25	12 7 34 98				
27	12 14 47 64				
Oct 1	12 29 15 66				
2	12 32 53 30				
3	12 36 31 20				
6	12 47 27 13				
9	12 58 26 38				
10	13 2 6 91				
22	13 46 55 53				
24	13 54 32 86				
26	14 2 12 78				
27	14 6 3 95				
28	14 9 56 02				
29	14 13 48 08				
30	14 17 41 66				
31	14 21 35 90				
Nov 3	14 33 22 53				
4	14 37 19 91				
5	14 41 18 10				
6	14 45 16 88				
10	15 1 20 66				
14	15 17 37 80				
17	15 30 0 25				
19	15 38 18 98				
20	15 42 29 65				
21	15 46 41 28				
23	15 55 7 00				

Year and Civil Day	R A. of Centre	Lmb observed in N P D	N P D of Lmb.	N P D of Centre	Parallax used in the Reductions
1829					
Nov 24	^{h m s} 15 59 20 86				
25	16 3 35 92				
26	16 7 51 53				
27	16 12 7 75				
28	16 16 24 72				
Dec. 1	16 29 19 55				
7	16 55 26 32				
10	17 8 36 20				
26	18 19 32 21				
29	18 32 51 36				
1830.					
Jan 4	18 59 21 75				
5	19 3 45 70				
7	19 12 31 92				
9	19 21 15 79				
11	19 29 57 65				
12	19 34 17 59				
13	19 38 37 04				
14	19 42 55 85				
15	19 47 14 21				
18	20 0 4 84				
19	20 4 20 18				
21	20 12 48 79				
22	20 17 2 18				
23	20 21 14 88				
25	20 29 37 45				
28	20 42 5 03				
Feb 3	21 6 37 74				
4	21 10 40 47				
6	21 18 42 87				
8	21 26 42 39				
9	21 30 40 71				
10	21 34 38 29				
13	21 46 26 43				
15	21 54 14 88				
16	21 58 8 22				
17	22 2 0 87				
18	22 5 52 37				
22	22 21 13 39				
23	22 25 1 62				
24	22 28 49 71				
26	22 36 23 28				
27	22 40 9 40				
March 6	23 6 17 26				
8	23 13 40 93				
9	23 17 22 43				
12	23 28 23 89				
16	23 43 2 16				

Year and Civil Day	R.A. of Centre	Lamb observed in N P D	N P D of Lamb	N P D of Centre	Parallax used in the Reductions
1830. March	^h ^m ^s		[°] ['] ["]	[°] ['] ["]	["]
17	23 46 41 17				
19	23 53 58 48				
20	23 57 37 08				
22	0 4 53 90				
23	0 8 32 19				
24	0 12 10 17				
25	0 15 48 36				
27	0 23 4 19				
31	0 37 36 48				
April					
1	0 41 13 97				
2	0 44 52 33				
3	0 48 31 06				
5		NL	83 45 36 88	84 1 37 02	5 50
7		SL	83 32 24 48	83 16 24 89	5 52
10	1 14 4 19	NL	81 53 11 03	82 9 9 81	5 70
13	1 25 4 39	SL	81 19 14 42	81 3 16 45	5 76
14	1 28 45 56	NL	80 25 28 59	80 41 26 29	5 86
15	1 32 26 87	SL	80 35 58 49	80 20 1 06	5 84
16	1 36 8 56				
19		SL	79 11 20 07	78 55 23 70	5 98
20		NL	78 18 43 97	78 34 40 08	6 07
21		SL	78 30 8 71	78 14 12 86	6 05
22		NL	77 37 53 83	77 53 49 43	6 14
24		SL	77 29 45 06	77 13 49 96	6 15
28		SL	76 12 11 61	75 56 17 49	6 28
29	2 24 48 03	NL	75 21 30 27	75 37 24 15	6 36
May					
3	2 40 2 80	SL	74 40 27 84	74 24 34 91	6 42
4	2 43 52 33	NL	73 51 8 12	74 7 0 83	6 50
5	2 47 43 30	SL	74 5 35 55	73 49 43 07	6 47
6	2 51 34 68				
7	2 55 26 07				
8	2 59 18 22				
June					
15		SL R	66 57 3 75	66 41 17 60	7 06
18		SL	66 50 53 35	66 35 7 41	7 06
19		NL	66 18 0 08	66 33 45 95	7 11
22		NL R	66 16 35 36	66 32 21 07	7 11
23		NL R	66 17 1 98	66 32 47 65	7 11
24	6 10 13 48	SL	66 49 36 25	66 33 50 62	7 06
25		SL	66 50 45 60	66 35 0 01	7 06
26		NL R	66 20 43 39	66 36 28 96	7 10
27		NL R	66 22 43 91	66 38 29 46	7 10
28		SL	66 56 53 55	66 41 8 02	7 05
July					
3	6 47 32 06				
14	7 32 35 34				
22	8 4 47 30				
23	8 8 46 18				
28	8 28 32 33				
29	8 32 27 63				

Right Ascensions and North Polar Distances of the Sun,

Year and Civil Day	R A. of Centre	Lamb observed in N P D	N P D of Lamb	N P D of Centre	Parallax used in the Reductions
1830	^{h m s}		^{o ' "}	^{o ' "}	["]
July 30	8 36 22 59				
Aug. 2	8 48 3 16				
3	8 51 55 42				
4	8 55 47 35				
13	9 30 6 59				
30	10 33 2 97				
Sept 14	11 27 12 85	SL	86 43 37 67	86 27 41 22	5 13
15	11 30 48 42	NL R	86 34 35 73	86 50 32 44	5 15
16	11 34 23 96	SL	87 29 52 38	87 13 55 40	5 04
18	11 41 34 58	NL R	87 44 11 47	88 0 8'98	5 02
19	11 45 10 27				
20	11 48 45 70	SL	89 2 59 03	88 47 0 99	4 86
21	11 52 21 28	NL R	88 54 9 38	89 10 7 68	4 88
22	11 55 57 14	SL	89 49 44 49	89 33 45 92	4 77
23	11 59 32 77	NL R	89 40 57 21	89 56 56 06	4 79
24	12 3 8 51				
25		SL	90 59 50 84	90 43 51 44	4 63
26		NL R	90 51 14 09	91 7 13 77	4 65
28		SL	92 10 12 39	91 54 12 16	4 48
29	12 21 9 91	NL R	92 1 23 82	92 17 24 33	4 50
Oct. 1	12 28 23 88				
5	12 42 55 76	SL	94 53 9 04	94 37 6 88	4 14
6	12 46 34 27	NL	94 44 8 67	95 0 11 11	4 16
8	12 53 53 14	SL	96 2 21 00	95 46 18 00	3 99
11	13 4 54 89	NL	96 38 52 73	96 54 56 56	3 92
12	13 8 36 35	SL R	97 33 35 56	97 17 31 45	3 79
18	13 30 56 50	SL R	99 47 15 95	99 31 10 21	3 50
19	13 34 42 15	NL R	99 36 54 94	99 53 0 95	3 52
21	13 42 14 68	SL	100 52 29 34	100 36 22 79	3 35
22	13 46 1 82	SL R	101 13 40 71	100 57 33'89	3 30
28	14 9 0 15	SL	103 18 33 73	103 2 25 34	3 02
29	14 12 52 26	SL R	103 38 29 88	103 22 21 24	2 97
Nov 1	14 24 33 87				
2	14 28 29 14	NL	104 24 23 04	104 40 32 67	2 86
6	14 44 18 43	NL R	105 38 45 10	105 54 55 70	2 69
8		SL	106 46 38 04	106 30 26 97	2 53
10	15 0 21 87	SL R	107 21 11 11	107 4 59 59	2 45
11	15 4 24 77	NL	107 5 45 28	107 21 57 02	2 48
12	15 8 28 74	NL R	107 22 12 97	107 38 24 93	2 44
13	15 12 33 34	SL	108 10 51 68	107 54 39 50	2 33
15	15 20 45 03				
16	15 24 52 46	SL R	108 57 30 15	108 41 17 35	2 21
22	15 49 53 05	NL	109 49 40 55	110 5 54 53	2 09
Dec 13	17 20 44 82	NL R	112 52 49 00	113 9 5 90	1 64
14	17 25 9 82				
15	17 29 36 11				
16		SL	113 35 45 90	113 19 28 73	1 54

Year and Civil Day	R A of Centre	Lamb observed in N P D	N P D. of Lamb.	N P D of Centre	Parallax used in the Reductions
1830.	^h ^m ^s		[°] ['] ["]	[°] ['] ["]	["]
Dec. 17	17 38 28 23	NL R	113 5 36 35	113 21 53 60	1 61
18	17 42 54 45	SL	113 40 21 30	113 24 3 98	1 53
19	17 47 20 70	NL R	113 9 23 19	113 25 40 58	1 60
20	17 51 47 44	SL	113 43 5 62	113 26 48 17	1 52
23		NL R	113 11 4 08	113 27 21 67	1 60
24	18 9 33 96	SL	113 42 49 21	113 26 31 58	1 52
25		NL R	113 8 51 78	113 25 9 45	1 60
26		SL	113 39 47 71	113 23 30 01	1 53
27		NL R	113 4 57 48	113 21 15 20	1 61
28		SL	113 35 1 59	113 18 43 85	1 54
29		NL R	112 59 8 72	113 15 26 48	1 63
30	18 36 11 22	SL	113 28 20 41	113 12 2 63	1 56
1831.					
Jan. 28	20 41 3 29				
31	20 53 23 69				
March					
7	23 9 4 14	SL R	95 43 57 69	95 27 49 57	4 06
13	23 31 9 61	NL	92 50 57 85	93 7 4 39	4 43
14	23 34 49 48	SL R	92 59 29 80	92 43 23 53	4 41
15	23 38 29 15	NL	92 3 39 60	92 19 45 60	4 52
16	23 42 8 77	SL R	92 12 7 78	91 56 2 05	4 51
17	23 45 47 87	NL	91 16 15 95	91 32 21 42	4 62
21	0 0 22 42	SL R	90 13 35 07	89 57 30 71	4 75
22	0 4 0 72	NL	89 17 49 38	89 33 53 46	4 86
23	0 7 38 80	SL R	89 26 24 63	89 10 20 83	4 84
24	0 11 17 02	NL	88 30 38 02	88 46 41 54	4 96
26	0 18 32 64	SL R	88 15 32 09	87 59 29 12	4 98
27	0 22 10 55	NL	87 19 59 54	87 36 2 24	5 10
28	0 25 48 37	SL R	87 28 32 27	87 12 29 85	5 08
29	0 29 25 91	NL	86 33 7 43	86 49 9 58	5 19
30	0 33 4 08	SL R	86 41 43 82	86 25 41 95	5 17

*Right Ascensions and North Polar Distances of the Moon, observed at the
Cape of Good Hope.*

Year and Day	Lamb Ob- served in R.A	R A. of Lamb	R A. of Centre at Passage of Lamb	Lamb Ob- served in N P D	N P D of Lamb	N.P.D of Centre at Passage of Centre	Parallax used in the Reductions.
1829		h m s	h m s				
April 11	1 L	7 57 59 83	7 59 1 93				
13	1 L	9 36 33 29	9 37 33 44				
20	2 L	15 18 30 24	15 17 26 97				
24	2 L	19 6 52 24	19 5 45 62				
May 11	1 L	10 6 5 06	10 7 4 98				
12	1 L	10 52 42 56	10 53 42 02				
14	1 L	12 26 17 62	12 27 17 44				
15	1 L	13 14 21 22	13 15 21 85				
June 15	1 L	16 23 12 13	16 24 17 75				
July 9	1 L	13 22 38 44	13 23 38 78				
11	1 L	15 2 51 66	15 3 54 72				
13	1 L	16 54 15 26	16 55 21 61				
Aug. 8	1 L	15 33 18 78	15 34 22 09				
9	1 L	16 27 48 18	16 28 53 12				
11	1 L	18 25 15 27	18 26 22 91				
13	1 L	20 29 40 05	20 30 48 34				
14	1 L	21 31 56 03	21 33 3 93				
14	2 L	21 34 17 14	21 33 9 24				
15	2 L	22 35 31 67	22 34 24 41				
16	2 L	23 35 30 76	23 34 24 13				
Sept 7	1 L	17 58 5 16	17 59 11 40				
9	1 L	19 58 1 97	19 59 9 64				
10	1 L	20 59 25 66	21 0 33 45				
12	1 L	23 1 51 60	23 2 58 89				
13	2 L	0 4 41 57	0 3 34 51				
14	2 L	1 4 45 50	1 3 38 51				
17	2 L	4 3 4 64	4 1 58 17				
Oct 5	1 L	18 34 15 07	18 35 20 99				
6	1 L	19 32 26 21	19 33 32 68				
10	1 L	23 30 2 69	23 31 9 49				
15	2 L	4 35 10 64	4 34 3 44				
Nov. 3	1 L	20 11 5 94	20 12 11 73				
4	1 L	21 8 35 51	21 9 41 28				
5	1 L	22 5 57 26	22 7 2 92				
6	1 L	23 3 19 72	23 4 25 42				
7	1 L	0 1 2 96	0 2 8 92				
9	1 L	1 59 4 97	2 0 11 94				
10	1 L	2 59 46 57	3 0 54 10				
14	2 L	7 3 22 32	7 2 16 89				

Year and Day	Limb Observed in R A	R A of Limb.	R A of Centre at Passage of Limb	Limb Observed in N P D	N P D of Limb	N P D of Centre at Passage of Centre	Parallax used in the Reductions
1829		^h ^m ^s	^h ^m ^s		^o ['] ["]	^o ['] ["]	['] ["]
Dec 7	1 L	2 31 50 99	2 32 57 40				
8	1 L	3 31 30 02	3 32 37 07				
9	1 L	4 32 9 13	4 33 16 48				
10	2 L	5 35 16 98	5 34 9 81				
11	2 L	6 35 5 17	6 33 58 79				
1830							
Jan 3	1 L	2 12 6 38	2 13 11 59				
4	1 L	3 9 30 86	3 10 36 66				
5	1 L	4 8 2 25	4 9 8 52				
6	1 L	5 7 18 42	5 8 24 83				
7	1 L	6 6 32 26	6 7 38 34				
8	1 L	7 4 45 71	7 5 50 94				
8	2 L	7 7 1 96	7 5 56 73				
9	2 L	8 3 21 01	8 2 16 98				
10	2 L	8 57 17 03	8 56 14 39				
20	2 L	17 10 52 85	17 9 47 95				
Feb 1	1 L	3 50 8 12	3 51 13 90				
3	1 L	5 46 13 89	5 47 19 55				
4	1 L	6 43 39 47	6 44 44 52				
5	1 L	7 39 45 34	7 40 49 41				
8	2 L	10 18 19 67	10 17 19 16				
9	2 L	11 6 39 69	11 5 40 04				
16	2 L	16 45 31 64	16 44 27 98				
17	2 L	17 40 41 95	17 39 36 95				
Mar. 2	1 L	5 28 48 60	5 29 54 46				
6	1 L	9 8 37 55	9 9 39 31				
7	1 L	9 58 51 10	9 59 51 73				
8	1 L	10 47 25 73	10 48 25 46				
9	2 L	11 36 49 69	11 35 50 55				
10	2 L	12 23 27 55	12 22 28 66				
18	2 L	19 9 38 50	19 8 32 79				
20	2 L	21 6 51 54	21 5 44 96				
31	1 L	7 4 35 82	7 5 40 78				
April 1	1 L	7 59 49 83	8 0 53 42				
2	1 L	8 52 39 83	8 53 42 04				
3	1 L	9 43 15 57	9 44 16 50	NL	78 28 17 08	78 43 13 46	39 21 54
4	1 L	10 31 59 42	10 32 59 34	NL	81 49 38 90	82 4 29 07	36 46 43
5	1 L	11 19 22 50	11 20 21 70	NL	85 29 24 14	85 44 9 71	33 55 63
6	1 L	12 5 57 47	12 6 56 33	NL	89 18 19 35	89 33 2 15	30 54 71
7	1 L	12 52 19 72	12 53 18 59	NL R	93 7 38 41	93 22 19 92	27 48 85
7	2 L	12 54 21 48	12 53 22 61				
8	1 L	13 39 0 82	13 40 0 06				
8	2 L	13 41 3 59	13 40 4 35				
30	1 L	9 26 39 00	9 27 40 77				
May 1	1 L	10 16 19 75	10 17 20 23	NL	80 33 21 98	80 48 17 58	37 53 85
3	1 L	11 50 51 37	11 51 50 37	NL	87 57 46 33	88 12 30 92	32 1 12
4	1 L	12 38 5 16	12 38 4 03	NL	91 49 6 05	92 3 48 54	28 54 47
5	1 L	13 23 30 95	13 24 30 08	NL	95 35 24 72	95 50 7 07	25 48 17
6	1 L	14 10 43 31	14 11 43 04				

98 *Right Ascensions and North Polar Distances of the Moon, Mercury, Venus,*

Year and Day	Lamb Observed in R A	R A of Lamb	R A of Centre at Passage of Lamb	Lamb Observed in NPD	NPD of Lamb	NPD of Centre at Passage of Centre.	Parallax used in the Reductions
1830		^h ^m ^s	^h ^m ^s		^o ['] ["]	^o ['] ["]	['] ["]
July 2	1 L	16 2 54 99	16 3 57 22				
5	1 L	18 47 47 50	18 48 52 57				
6	2 L	19 46 15 92	19 45 10 58				
7	2 L	20 43 34 79	20 42 29 54				
13	2 L	2 19 37 93	2 18 32 39				
14	2 L	3 17 51 30	3 16 44 94				
27	1 L	14 4 33 16	14 5 32 92				
28	1 L	14 52 22 42	14 53 22 94				
30	1 L	16 33 7 75	16 34 10 55				
31	1 L	17 26 41 85	17 27 45 83				
Aug 1	1 L	18 22 19 20	18 23 24 17				
2	1 L	19 19 30 86	19 20 36 45				
3	1 L	20 17 34 61	20 18 40 42				
4	2 L	21 18 1 73	21 16 56 03	NL	103 24 40 48	103 40 38 11	20 40 31
5	2 L	22 15 45 11	22 14 39 70	NL	99 48 17 34	100 4 23 31	24 20 43
12	2 L	4 58 43 58	4 57 36 76				
13	2 L	5 58 39 09	5 57 32 35				
30	1 L	19 49 57 69	19 51 3 36				
31	1 L	20 48 3 83	20 49 9 77				
Sept 1	1 L	21 46 29 56	21 47 35 52				
2	1 L	22 44 52 65	22 45 58 52				
2	2 L	22 47 9 67	22 46 3 80				
3	2 L	23 45 22 45	23 44 16 63				
11	2 L	7 37 53 87	7 36 48 68				
Oct. 1	1 L	0 11 52 27	0 12 58 58	SL	91 3 12 63	90 46 38 06	33 19 60
3	2 L	2 14 14 19	2 13 6 78				
24	1 L	19 56 45 56	19 57 49 80				
25	1 L	20 51 53 91	20 52 58 43	SL	105 20 56 91	105 5 22 46	18 19 05
26	1 L	21 47 33 47	21 48 38 24				
27	1 L	22 43 47 67	22 44 52 75	SL	98 17 53 74	98 1 47 06	25 47 23
28	1 L	23 40 50 98	23 41 56 56				
Nov 1	2 L	3 46 32 08	3 45 23 09				
25	1 L	0 11 20 62	0 12 25 50				
27	1 L	2 7 30 14	2 8 37 22				
29	1 L	4 13 5 70	4 14 15 05				
Dec. 24	1 L	1 42 9 24	1 43 14 61				
26	1 L	3 41 2 14	3 42 10 14				
28	1 L	5 48 53 60	5 50 2 99				
29	1 L	6 53 30 38	6 54 39 28				
29	2 L	6 55 55 04	6 54 46 14				
30	2 L	7 58 43 40	7 57 35 47				

Right Ascensions of Mercury, observed at the Cape of Good Hope.

Year and Day.	R A of Centre.
1829.	h m s
April 20	0 54 32 43
21	1 1 2 28
May 13	3 45 40 87
14	3 54 32 63
21	4 55 2 95
25	5 26 47 73
June 15	7 12 38 62

Right Ascensions of Venus, observed at the Cape of Good Hope.

Year and Day	Part Observed in R A	R A of Lumb	R A of Centre
1829.		h m s	h m s
April 14	C		1 0 24 81
20	C		1 27 52 31
21	C		1 32 28 72
29	C		2 9 45 19
May 1	C		2 19 12 41
1830			
Feb. 4	1 L	23 27 4 87	23 27 6 28
5	1 L	23 28 4 08	23 28 5 51
9	1 L	23 30 45 38	23 30 46 91
10	1 L	23 31 5 90	23 31 7 45
15	1 L	23 30 40 85	23 30 42 52

Right Ascensions and North Polar Distances of Mars, observed at the Cape of Good Hope.

Year and Day	Part Observed in R A	R A of Limb	R A of Centre	Part Observed in N P D	N P D of Limb	N P D of Centre	Parallax used in the Reductions.
1830		h m s	h m s				
Sept 18				NL	96° 15' 39" 90	96° 15' 51" 30	10" 15
19				SL	96 20 8 39	96 19 57 01	10 11
21				C		96 27 23 74	10 04
22				C		96 30 47 02	10 01
23				C		96 34 1 53	9 97
24				C		96 37 1 59	9 90
30				C		96 49 46 98	9 53
Oct 1	C		23 41 21 50	C		96 50 55 96	9 48
3	C		23 39 35 96	C		96 52 23 59	9 37
4	C		23 38 46 58	C		96 52 41 72	9 29
5	C		23 38 0 25	C		96 52 42 77	9 22
8	C		23 35 52 67	C		96 50 54 66	9 01
9	C		23 35 15 85	C		96 49 41 83	8 94
10	C		23 34 41 45	C		96 48 9 54	8 88
11	C		23 34 9 69	C		96 46 19 39	8 81
12	C		23 33 40 93	C		96 44 11 96	8 75
16	C		23 32 15 16	C		96 32 40 34	8 48
17	C		23 32 1 11	C		96 29 1 48	8 42
18	C		23 31 49 99	C		96 25 6 06	8 35
19	C		23 31 42 22	C		96 20 53 18	8 29
20	C		23 31 37 23	C		96 16 22 80	8 23
21	C		23 31 35 52	C		96 11 35 24	8 17
23	C		23 31 40 57	NL	96 1 0 78	96 1 9 74	8 05
28				SL	95 30 49 48	95 30 40 99	7 75
Nov. 6	1 L	23 37 28 55	23 37 29 06	SL	94 21 16 60	94 21 8 92	7 28
7	1 L	23 38 12 53	23 38 13 04	SL	94 12 34 76	94 12 27 16	7 23
9	1 L	23 39 47 59	23 39 48 08	SL	93 54 29 52	93 54 22 09	7 13
10	1 L	23 40 38 18	23 40 38 67	SL	93 45 7 77	93 45 0 42	7 09
12	1 L	23 42 26 24	23 42 26 72	SL	93 26 0 05	93 25 52 87	7 00
13	1 L	23 43 23 55	23 43 24 02	SL	93 16 12 93	93 16 5 83	6 95
14	1 L	23 44 22 67	23 44 23 14	SL	93 6 14 59	93 6 7 57	6 91
15	1 L	23 45 23 58	23 45 24 04	SL	92 56 9 29	92 56 2 34	6 87
19	1 L	23 49 48 44	23 49 48 88	SL	92 14 3 09	92 13 56 45	6 70
22	1 L	23 53 25 91	23 53 26 34	SL	91 40 59 70	91 40 53 28	6 58

from Observations at the Cape of Good Hope, 1829, 1830, 1831. 101

Right Ascensions and North Polar Distances of Jupiter, observed at the Cape of Good Hope.

Year and Day.	Part Observed in R.A.	R A of Centre.	Part Observed in N P.D.	N P D. of Lumb	N P D of Centre
1829.		^h ^m ^s		[°] ['] ["]	[°] ['] ["]
June 15	C	16 27 51 19			
18	1 & 2 L	16 26 22 54			
July 14	1 & 2 L	16 16 40 8½			
15	1 & 2 L	16 16 27 07			
16	1 & 2 L	16 16 24 00			
21	1 & 2 L	16 15 29 29			
Aug. 13	1 & 2 L	16 15 13 58			
28	1 & 2 L	16 18 44 89			
1830					
Sept 15			SL	113 27 52 83	113 27 32 01

Right Ascensions of Saturn, observed at the Cape of Good Hope.

Year and Day	Part Observed in R.A.	R A of Centre.
1829.		^h ^m ^s
April 13	C	7 59 2 57
1830.		
Feb 3	C	9 10 6 75
4	C	9 9 47 09

102 *Right Ascensions and N.P. Distances of Uranus and the Comet of 1830.*

Right Ascensions and North Polar Distances of Uranus, observed at the Cape of Good Hope.

Year and Day	R.A. of Centre	N P D of Centre
1830	h m s	° ' "
Oct 5	20 36 36 04	109 16' 37 65
8	20 36 29 95	109 16 54 22
9	20 36 28 33	109 16 57 07
10	20 36 27 09	109 17 3 09
11	20 36 28 69	109 17 4 36
12		109 17 5 57
16	• 20 36 22 82	109 17 7 94
17	20 36 22 83	109 17 5 01
18	20 36 23 12	109 17 3 04
19	20 36 23 61	109 17 0 29
21	20 36 25 11	109 16 50 34
22	20 36 26 26	109 16 44 11
23	20 36 27 63	109 16 37 70

Right Ascensions and North Polar Distances of the Comet of 1830, observed at the Cape of Good Hope.

Year and Day	R A of Centre	N P.D of Centre
1830	h m s	° ' "
Mar. 22	22 10 21 33	164 43' 0 46
23		160 33 4 11
24	21 42 26 25	156 9 7 06

ERRATUM.

Page 66, first column of stars, for 106 Aquarii ¹, read 106 Aquarii ².

To the front of this copy of observations is attached a sheet of writing-paper, on which is the following note, in Mr. FALLOWS' hand-writing:—

“ The mural circle destined for this Observatory arrived at the Cape about the close of the year 1826, at which time the building itself was only in progress. My first care was to secure it in a substantial storehouse at Cape Town, till everything was fully prepared for its reception here. At the end of 1828, the instrument was conveyed from Cape Town to be unpacked in one of the rooms on the eastern wing, by coolies (porters) with the greatest possible care; and as I walked along the road with these people, directing them the whole distance, I can safely assert that no damage whatever could take place at that time. It is right for me to state that Captain RONALD, the Assistant, who went on board ship to see the mural case raised from the hold to the deck, informed me that, on his arrival at the jetty, where I was preparing everything to be in readiness on landing, some of the tackle gave way, and the case *fell* a short distance. I am particular in mentioning this circumstance, though apparently of little importance, from the consideration that every justice should be done to Mr. JONES, Charing Cross, the maker of our circle.

“ It ought to be borne in mind that the Cape cannot provide intelligent workmen enow to raise so heavy an instrument upon its pier without the utmost caution on the part of the person who directs the operation. Had it not been for the aid which I received from our *then* Clerk of Works, JOHN SKIRROW, Esq. I hardly know how the business would have been accomplished, though these things are *trifles* in London. Upon the whole, I am inclined to imagine that it is hardly possible for the mural to have sustained injury at the Cape: however this may be, I am, and have been, unable to bring the readings *taken separately* into accordance; but taken *collectively* the results are as near as one could expect them to be. The accompanying papers leave no doubt in my mind in this respect. No fault, I think, can be discovered in the divisions of the circle, the *runs* of each microscope are well adjusted; and yet, if *two* opposite microscopes only be used, the index error is *ever variable* in different parts of the instrument; with *three* microscopes 120° apart, very nearly constant. I can vouch for the stability of the pier. The fair conclusion then to be drawn from what has been just said seems to

indicate some warp in the axis, which is overcome by the powerful influence of the six microscopes

" Had I been so fortunately situated as to have the advice and assistance of Mr. JONES, I should have been spared much time, much trouble, and no little annoyance.

"FEARON FALLOWS

" *Royal Observatory, Cape of Good Hope,*
7 Nov 1830 "

A continuation of the history of this instrument will be found in the *Memours of the Royal Astronomical Society*, vol. v (M^r. SHEEPSHANKS), and vol. viii. (M^r. HENDERSON). M^r. SHEEPSHANKS, from a complete set of readings of the six microscopes at every 10° reading of the circle-pointer, deduced the movements of the centre of the circle, and these were found to be so extravagant as to account for a sensible part of the discordances of the microscope readings. Some deductions were drawn from these by myself (in an appendix to M^r. SHEEPSHANKS' paper), and by M^r. HENDERSON, as to the form of the pivot. Still a considerable irregularity remained in the microscope readings, unexplained by any fault of the pivot.

In 1840, this circle was sent to the Royal Observatory of Greenwich (another circle, by M^r. JONES, of the same form and dimensions, and probably equal to any in the world, having been sent to replace it at the Cape), and after some examination of its large pivot, which was evidently deformed, M^r. SIMMS proceeded under my direction to re-turn it, when, to our great astonishment, the steel collar of the pivot was found quite loose, having been attached merely by soft solder. A new collar was mounted in the usual way, by heating-on, and was very carefully turned, and the instrument was adjusted for use. It was not, however, actually used till the summer of 1848 (during an interruption in the use of TROUGHTON'S circle), and the details of those observations are given in the *Greenwich Observations*, 1848. From these the reader will see how great are the errors of division, as freed from sensible error in the form of the pivot.

To this account I have only to add that there is not the smallest appearance of mechanical injury to the instrument. And I think it most probable that the first cause of the discreditable state of the divisions is the form of the pivot, by which every division would be affected (the graduations having been made in TROUGHTON'S manner, and no opposite divisions having been

examined at the same time for provisional errors). Mr. HENDERSON and Mr. MACLEAR, as well as Mr. FALLOWS, were perfectly satisfied with the result given by the mean of the six microscopes; and my own use of the instrument has given me the same confidence in its accuracy.

To give an idea of the appearance of the observations, I extract at random the microscope readings for two stars, next to each other in time on the same day, and differing about 61° in position.

	A	B	C	D	E	F
1830, April 7, β Argûs	60 5	61 1	64 1	57 8	34 7	47 8
α Hydræ	85 0	102 6	41 0	33 0	130 5	124 0

In the former of these E is less than D by $23''$, and in the latter it is greater by $97''$. The most probable source of accidental error, when the relation of the microscope-readings changes in this manner, is, the reading of some one of the microscopes with an error of $1'$. To detect these, the following examination was instituted. It will easily be seen that it gives materials for discovering errors of a few seconds in any one microscope, and also for discovering small errors in the mean of the six microscopes.

First, it was ascertained from Mr. FALLOWS' notes, that, by occasional adjustments of the microscopes, the observations were divided into the following groups, in each of which the position of the microscopes might be considered invariable, viz. :

1830, April 2 to May 5
 (No observations of stars between May 5 and July 3)
 July 3 to Aug. 6
 (No observations between Aug 6 and Sept 14)
 Sept 14 to Sept 23
 Sept. 24 to Dec 20
 Dec 24 to Dec 30
 (No observations between 1830, Dec 30, and 1831, Jan 25)
 1831, Jan 25 to Mar 30

In each of these groups, the stars were placed in the order of their pointer-readings (the reflexion-observations of any star being considered as belonging to another star in the reflexion-position), and the days of observation of each star were collected. Mr. FALLOWS had taken the mean of the six microscopes for each observation. It was easy, therefore, to place, opposite to each day of observation, the difference between each microscope and

the mean of the six; a difference which, while the position of the microscopes is unvaried, ought to be constant for each star, and ought to vary from star to star (for the same microscope) as a function of the pointer-reading. Any departure from these laws was immediately caught by the eye. The observations of the sun, &c., were treated in the same manner, (excepting those between June 15 and June 28, of which only the mean of microscopes is given), it being understood only, that as its pointer-reading varied from day to day, the differences would slowly change. In this manner several errors in readings of microscopes and in means, which had escaped Mr. FALLOWS, were detected.

The next step was to form zenith-points. It was Mr. FALLOWS' practice to observe on one day a certain number of stars by reflexion, on the next day to observe the same stars directly with other stars; on a third day to observe some of the preceding day's stars, and, also other stars, by reflexion, and so on. This process, presuming on the firmness of the pier and microscopes (which appear in this instrument worthy of every confidence), is admirably adapted to give accurate zenith-points. But as the star's apparent place and its refraction are different on different days, it is necessary so to shape the process that due account may be taken of these changes. The process, therefore, was this.—First, an approximate zenith-point was found, and from the star's approximate zenith-distance, and the barometer and thermometer readings given by Mr. FALLOWS, the refraction was computed by BESSEL's Tables. These refractions were applied to the circle readings, a process which required much care, as the sign changed at the zenith, the nadir, and the north and south horizons. Then the star-reductions were computed by BESSEL's $\log A$, $\log B$, $\log C$, $\log D$, and the $\log c'$, $\log d'$, $\log a'$, $\log b'$, of the Royal Astronomical Society's Catalogue, or by the equivalent formulæ. These star-corrections were applied to the circle-readings, with changed sign for direct observations, and with unchanged sign for reflexion-observations (the circle-readings increasing from the south horizon through the zenith to the north), and thus the circle-readings were obtained which would have been found from observation if the stars had been invariable in place and unaffected by refraction. Then by comparing a corrected direct circle-reading, for a star on one day, with a corrected reflexion circle-reading for the same star on another day, a zenith-point was found. These zenith points were found to be exceedingly accordant for the different stars, and so

steady from day to day that there was no difficulty in adopting one mean zenith-point through the whole duration of each of the groups which I have mentioned (using Sept. 24 to Dec 30 as one group). By application of this zenith-point to the corrected circle-reading, a corrected zenith-distance would be found, corresponding to the star's mean place at the beginning of the year, unaffected by refraction. But it was thought better to combine the zenith-point with the colatitude of the place, and the application of the quantity so formed gave at once a mean north polar distance of the star. The mean north polar distances for 1831 were afterwards reduced to 1830 by application of one year's precession, the same quantity as that given in the Catalogue hereafter to be described. The colatitude employed was Mr. HENDERSON's, namely, $56^{\circ} 3' 56'' \cdot 75$ (*Mem. Roy. Ast. Soc* vol x p. 77); that obtained from several of Mr. FALLOWS' observations of β *Hydri* above and below the pole is not sensibly different. The results of a few observations which appear to be erroneous, are included in brackets; they are not used in the formation of the Catalogue.

The only stars which, from their proximity to the horizon, can be used for correction of refraction, are β *Hydri* S. P. and γ *Draconis*. The observations, reduced only for zenith point, are as follows:—

Star's Name	Day of Observation	Uncorrected Zenith Distance	Barometer	Thermometer		Refraction computed by Bessel's Tables
				Ext	Int	
β <i>Hydri</i> S P	1830, July 3	$67^{\circ} 49' 18'' \cdot 10$	$30^{\text{in}} 14$	$51^{\circ} 9$	$57^{\circ} 5$	$2' 22'' \cdot 12$
	6	15 60	30 47	51 0	55 4	2 23 94
	7	17 15	30 25	52 8	56 2	2 22 37
	8	19 67	30 14	59 3	57 5	2 19 99
	9	19 32	30 05	53 8	57 8	2 21 14
γ <i>Draconis</i>	1830, July 29	$85^{\circ} 16' 40'' \cdot 75$	30 53	46 8	53 6	10 35 65
	30	40 75	30 52	50 8	54 5	10 29 77
	31	58 60	30 32	53 8	55 9	10 21 96
	Aug 2	45 82	30 33	49 0	57 6	10 28 28
	3	57 43	30 23	55 0	57 6	10 18 32
	4	57 32	30 10	55 0	57 6	10 15 63

It is necessary to state that there is no determination of zenith point

between May 5 and July 28, and no notice of change of microscopes. The observations of β *Hydræ*, both above and below the pole, as well as the observations of the sun in the same interval, are reduced with the zenith point $90^{\circ} 0' 35'' 80$, which is given by the observations commencing July 28. The zenith point up to May 5 is $90^{\circ} 0' 41'' 11$.

For the sun, moon, and planets, the same general process was used, the parallax being subtracted (numerically) from the circle-readings for direct observations, and added for reflexion-observations. The methods and authorities for computing these parallaxes will be described hereafter.

Catalogue of Concluded Mean Right Ascensions and North Polar Distances of Stars.

I will explain the columns of the Catalogue in order.

The *first* column contains merely a series of Nos. for facility of reference.

The *second* column contains the star's name. One of the following names has been adopted in the order of preference:—

- (1.) FLAMSTEED's constellation and No. and BAYER's letter.
- (2.) LACAILLE's constellation and Greek letter, with the addition of any modification of the name in the Catalogues of the British Association.
- (3.) The No. in the General Catalogue of the British Association.
- (4.) PIAZZI's Hour and No.
- (5.) WEISSE's Hour and No.
- (6.) The No. in LALANDE's Catalogue, published by the British Association.
- (7.) The star's North Polar Distance.

The six stars of the last class were defined by Mr. FALLOWS in the following way:—

No. 78. " $3^{\circ} 43'$ Z.D." It appeared from a computation of the intervals of wires that the zenith-distance must be supposed to be south, although in every other instance it is measured to the north.

No. 82. Z.D. given as $49^{\circ} 6'$, $49^{\circ} 7'$, $49^{\circ} 9'$. The intervals of wires shew that it was north.

No. 86. "Z.D. $49^{\circ} 25'$, taken for 89° *Tauri*."

No. 123. "In the way of E° *Orionis*."

No. 142. "Z.D. $52^{\circ} 29'$, set for the moon."

No. 236. "Instead of *Centauri*."

The *third* column contains the number of observations of each star in right ascension.

The *fourth* column is formed by converting each day of observation into an equivalent fraction of year, reckoning from Jan. 1, and taking the mean of all.

The *fifth* column is the mean of all the results for mean right ascension, 1830, January 1.

The *sixth* column contains the annual variation in R.A., thus formed.—

For all stars included in the Catalogue of the Royal Astronomical Society the annual variations are copied (some containing proper motions and others being simple geometrical precession) without any alteration, except in the instance of No. 249, *Centauri* α^2 , as is mentioned in the note.

For all other stars (24 in number) the precessions are computed by the formula $+3''.068 + 1''.3362 \sin \text{R.A.} \cotan \text{N.P.D.}$ The N.P.D. of the two stars nearest to the south pole, σ *Octantis* and B.A.C. 7020, have been first carefully computed for 1830.

The *seventh* and *eighth* columns contain the numbers of observations with the mural circle, distinguished as direct or by reflexion.

The *ninth* and *tenth* columns contain the means of all the results for N.P.D. 1830, Jan. 1, distinguished in the same way.

The *eleventh*, *twelfth*, and *thirteenth* columns correspond exactly in N.P.D. to the *third*, *fourth*, and *fifth* in R.A.

A reflexion-observation is supposed as accurate as a direct observation. For β *Hydri* below the pole the weight $\frac{2}{3}$ is given to each observation in combination with those above the pole.

The *fourteenth* column contains the annual variation in N.P.D. For all stars included in the Catalogue of the Royal Astronomical Society the annual variations are copied without alteration, except in the instance of No. 249, α^2 *Centauri*, as is mentioned in the note. For the two remaining stars (WEISSE, x. 987 and B.A.C. 7020), it is computed by the formula $-20''.043 \cos \text{R.A.}$

*Right Ascensions and North Polar Distances of the Sun, Moon, and Planets,
and of the Comet of 1830.*

The right ascension of the sun's centre is in every instance found from the mean of the transits of the two limbs, except on 1830, Nov. 22, when the 2 L only was observed. The time of semidiameter passing is taken from the Berlin Ephemeris.

The north polar distance of the sun's centre is formed by the following steps:—First, the N.P.D. corrected for refraction is formed as for the stars. Second, the parallax is computed with the approximate Z.D. diminished by $10' 37''$ for angle of the centre, and with the ar. complement log. distance of the Bologna Ephemeris increased by 0.9329 (which constant includes the effect of the sun's mean horizontal equatorial parallax $8''.57$ and the geocentric radius of the Cape of Good Hope for compression $\frac{1}{3.186}$). Third, after the application of parallax, the semidiameter of the Berlin Ephemeris is applied.

The right ascension of the moon's limb is formed as for a star. The difference of right ascension of the moon's limb and moon's centre is thus investigated:—The Berlin mean solar time of the moon's passage at the Cape of Good Hope is found by subtracting from the Berlin mean time of the passage at Berlin a quantity varying from $20^m.9$ (when the moon's increase of time of transit in one day is 42^m) to $21^m.2$ (when the increase is 64^m). With this time the semidiameter in arc is interpolated from the Berlin Ephemeris, with second differences. For 1829 the moon's declination is also interpolated in the same manner; for 1830 it is taken from the declination at transit at Berlin, with application of a small correction for the difference of longitude. The difference of R.A. is then computed by the formula $\frac{\text{moon's semidiameter}}{15 \times \cosine \text{ declination}}$; and this quantity is applied to form the R.A. of moon's centre at passage of limb.

On 1829, August 14, and 1830, January 8 and April 7, the corrections $+0''.01$, $+0''.09$, and $+0''.07$, are applied to the 2 L; and on 1830, April 8 and Dec 29, the corrections $-0''.55$ and $-0''.24$ are applied to the 1 L, for defect of illumination. These numbers are computed as in the *Greenwich Observations* and *Lunar Reductions*.

On 1830, Sept. 2, the moon was observed during the obscuration of a total eclipse.

The N.P.D. of the moon's limb is found by correcting the circle-reading for refraction, forming an approximate corrected apparent zenith-distance; and then (with horizontal equatorial parallax interpolated with second differences from the Berlin Ephemeris) computing the approximate parallax by the formula, $\log. \text{seconds of approximate parallax} = \log. \text{sec. of hor. eq. par.} + 9.999512 + \log. \sin (Z.D. - 10' 37'')$, and applying a very small correction peculiar to the moon's limb (see the *Lunar Reductions*); and with this parallax, and the polar point of the circle, forming the N.P.D. of limb. Then the semidiameter, found as previously described, is applied to form the N.P.D. of centre.

The circle-observation of the moon, which is here ascribed to October 25, was in the observation-book dated October 24. It was found necessary to alter the day, and also to diminish the pointer-reading (direct observation) by 10° .

The log. semidiameters of *Venus* in R.A. are computed by the formula, $9.7404 + \ar. \text{co. log. distance} + \log. \text{secant declination}$. The log. distance is taken from the Bologna Ephemeris.

The log. semidiameters of *Mars* in R.A. are computed by the same formula, with the constant 9.4713.

The parallax of *Mars* is computed by the formula, $\log. \text{parallax} = \log. \text{sine (Zen. Dist.} - 10' 37'') + \ar. \text{co. log. distance} + 0.9329$. The log. distance is taken from the Bologna Ephemeris. The log. semidiameter in N.P.D. = $0.6474 + \ar. \text{co. log. distance}$.

On October 8 there is the remark, "too high above centre wire 2" or 3". On Sept. 18 and October 23 the limb is changed from S. to N., and on Sept. 19 and Nov. 22 it is changed from N. to S.

In the transit of *Jupiter*, 1829, August 13, the 1 L is marked as observed on the 2, 3, 4 wires, and the 2 L on the 4, 5, 6 wires, but it was found necessary to reduce the 5 and 6 wires as belonging to the 1 L. In the circle observation of 1830, Sept. 15, the N.L is changed to S.L., and the circle-reading (observation direct) is diminished 1'. The log. distance for parallax and semidiameter is taken from the Bologna Ephemeris; the constant for semidiameter is 1.9987.

For *Uranus* the log. distance is taken from the Bologna Ephemeris.

The N.P D. of the comet of 1830 is given as computed by Mr. FALLOWS from observations corrected by index-errors found from α *Orionis* and α *Hydræ*. Refraction is applied, but not parallax. Some particulars of this comet will be found in the *Astronomische Nachrichten*, No 183, vol. viii. p. 300.

In addition to the observations of which the reduction is here given, Mr. FALLOWS' books contain some observations of the comet of 1830, made with an altitude and azimuth instrument, and some measures of the distance of the cusps in the solar eclipse of 1830. I have not attempted to reduce these, as several explanations which appear essential to the certainty of the reductions are omitted.

The latitude of the Royal Observatory of the Cape of Good Hope is $33^{\circ} 56' 3''.25$ south (HENDERSON, *Mem. Royal Astronomical Society*, vol x p. 77), and its longitude $1^{\text{h}} 13^{\text{m}} 55^{\text{s}}$ east of the meridian of Greenwich (HENDERSON, *Mem. Royal Astronomical Society*, vol. viii. p. 137).

ROYAL OBSERVATORY, CAPE OF GOOD HOPE.

MEAN RIGHT ASCENSIONS OF STARS

FOR 1830, JANUARY 1,

DEDUCED FROM EACH DAY'S OBSERVATION,

IN THE YEARS

1829, 1830, AND 1831.

Piazz's XXIII—282 B. A C 5				Hydri β				Hydri β, continued				Hydri β, continued			
1830 Nov. 25 0 0 0 72				1829 April 11 SP 0 16 40 16				1829 July 6 0 16 39 81				1830 Dec 1 0 16 39 85			
Phoenicis α				11 40 13				8 40 10				5 40 26			
1829 Aug 26 0 0 45 49				12 40 50				8 40 03							
27 45 50				12 40 44				9 39 95				Phoenicis α			
28 45 45				13 40 02				Aug. 3 37 05				1829 Sept 17 0 17 51 62			
Sept 3 45 75				14 40 71				3 42 86				Oct 30 51 79			
14 45 19				14 40 46				3 40 19				Nov 2 51 77			
17 45 42				15 42 37				15 40 72				3 51 76			
Oct. 19 45 29				16 40 04				16 41 26							
20 45 45				16 39 96				26 40 71							
22 45 65				20 40 28				27 40 59							
23 45 46				21 40 02				28 40 52							
26 45 60				21 40 12				28 40 67							
27 45 58				22 39 66				Sept 2 40 55				12 Ceti			
30 45 54				23 39 90				2 40 69				1830. Oct 3 0 21 21 87			
Nov. 2 45 49				24 39 75				2 40 83				5 21 93			
4 45 53				25 40 06				3 40 81				8 21 85			
19 45 42				29 40 51				3 40 81				10 22 12			
8 Ceti α				29 40 27				6 40 65				11 21 98			
1829. Aug 27 0 10 45 90				30 40 05				7 40 35				12 21 94			
Sept. 14 45 69				May 1 40 26				7 40 61				16 21 93			
17 45 94				1 39 86				12 40 36				17 21 91			
Oct. 20 45 92				2 39 46				12 40 86				18 21 99			
23 45 88				3 39 35				13 40 31				19 21 94			
26 45 94				5 40 16				13 40 72				20 21 91			
27 46 06				5 39 95				Oct 19 40 28				21 21 89			
30 45 81				7 40 19				20 39 98				23 22 03			
Nov. 2 45 94				7 40 25				21 39 77				28 21 82			
3 46 00				8 40 42				22 39 92				Nov. 6 21 96			
16 45 93				8 40 08				26 40 57				7 21 98			
19 45 70				10 40 15				Nov 6 40 92				9 22 10			
Piazz's O—60 B A C 81				11 40 05				16 39 90				10 21 99			
1829. Oct. 10 0 15 48 72				12 40 12				19 39 80				12 22 03			
				13 40 13				20 40 14				13 21 96			
				13 40 07				23 41 11				14 21 99			
				14 40 36				24 40 15				19 21 90			
				14 40 07				25 40 03							
				15 40 11				26 40 26							
				15 40 01				27 40 02							
				17 40 05				28 40 97							
				18 39 73				Dec 21 40 51							
				20 40 07				22 40 48							
				24 39 90				24 40 48							
				25 39 79				24 40 64							
				June 15 42 21				1830. May 4 41 56				1829 Nov 2 0 23 11 64			
				18 42 02				5 40 04				3 11 54			
				July 3 39 74				5 41 82							
				3 40 46											
				6 39 53											

Toucanæ β^1		20 Ceti		Phœnicis β		45 Ceti δ , continued	
1829 Sept 17	$^h \ ^m \ ^s$ 0 23 42 44	1829 Aug 28	$^h \ ^m \ ^s$ 0 44 19 26	1829 Aug 26	$^h \ ^m \ ^s$ 0 58 28 77	1829 Nov 16	$^h \ ^m \ ^s$ 1 15 31 55
Oct 30	42 69	Sept 7	19 30	28	28 83	17	31 69
{ Weissc O—467 }		17	19 43	Sept 7	28 77	19	31 63
{ Lalande 856 }		Oct 22	19 56	17	28 68	20	31 61
1829 Sept 13	0 26 14 33	26	19 21	Oct 22	28 92	21	31 73
14 Ceti.		27	19 56	26	28 64	26	31 74
1830 Oct 1	0 26 49 62	Nov 16	19 42	27	29 08	27	31 94
{ Piazz I—131 }		19	19 46	Nov 16	29 02	28	31 75
{ B A C 161 }		20	19 38	17	28 96	Dec 3	31 58
1829 Sept 14	0 28 45 33	21	19 37	19	28 73	4	31 52
16 Ceti β		24	19 43	20	28 96	8	31 85
1829 Aug 16	0 35 3 15	25	19 68	21	28 84	11	31 75
26	2 96	26	19 60	25	29 09	14	31 81
28	2 95	Dec 4	19 39	26	28 94	1830 Dec 5	31 68
Sept. 7	2 98	8	19 44	Dec 3	28 54	6	31 69
17	3 17	9	19 44	4	28 66	{ Piazz I—85 }	
Oct 27	3 15	11	19 42	8	28 97	{ B A C 440 }	
Nov 16	3 35	1830 Oct 1	19 57	11	28 92	1829 Nov 9	1 19 28 49
19	2 94	Sculptoris α .		Phœnicis ζ		Phœnicis γ	
20	3 23	1829 Aug 28	0 50 24 24	1829 Nov 21	1 1 13 23	1829 Aug 26	1 20 58 44
24	3 24	Sept 7	24 32	26	13 17	28	58 23
25	3 41	17	24 45	Dec 3	13 11	Sept 7	58 21
26	3 23	Oct 22	24 55	4	13 00	17	58 14
Dec. 4	3 18	26	24 18	8	13 02	Oct 26	58 03
8	3 14	27	24 63	11	13 08	27	58 12
11	2 88	Nov 16	24 18	89 Piscium f		Nov 19	58 13
63 Piscium δ .		17	24 38	1829 Sept 14	1 9 1 77	20	58 36
1829 Sept. 13	0 39 52 10	19	24 04	45 Ceti δ .		21	58 40
14	51 94	20	24 52	1829 Aug 16	1 15 31 75	25	58 45
		21	24 40	26	31 61	26	58 39
		25	24 68	28	31 59	27	58 51
		26	24 56	Sept 7	31 50	28	58 42
		Dec 3	24 26	17	31 39	Dec 3	58 30
		4	24 36	Oct 26	31 56	4	58 14
		8	24 41	27	31 72	8	58 30
		11	24 37			11	58 28
		12	24 48			14	58 12

11 Eridani τ^3 , continued			16 Eridani τ^4 , continued			19 Eridani τ^5 , continued			23 Eridani δ , continued		
1829 Nov 19	h m s 2 54 53 69		1829 Dec 4	h m s 3 11 57 38		1829 Nov 20	h m s 3 26 16 72		1829 Dec 11	h m s 3 35 6 47	
20	53 58		8	57 48		21	16 83		21	6 55	
21	53 74		11	57 44		25	16 85		22	6 52	
25	54 10		21	57 45		26	16 79		24	6 60	
26	53 82		22	57 35		27	16 92		1830		
27	53 98		24	57 41		Dec 3	16 90		Dec 13	6 85	
Dec 3	53 78		26	57 41		4	16 84		15	6 55	
4	53 79		1830 Dec 23	57 43		11	16 95		16	6 52	
11	54 03		24	57 40		21	16 94		18	6 51	
22	53 82		5 Tauri f			22	16 84		30 Tauri e		
24	53 87		1829 Dec. 8 3 21 29 99			24	16 82		1830 Nov 1 3 38 57 62		
{ Piazzani III—4 } { B A C 987 }			{ Piazzani III—103 } { B A C. 1119 }			1830. Nov 1 3 29 49 73			27 Eridani τ^6		
1830 Jan 4	3 2 2 43		17 Eridani			{ Piazzani III—113 } { B. A. C. 1125 }			1829 Sept 17	3 39 32 05	
12 Eridani			1829 Oct 26	3 22 11 09		1829 Dec 21	3 30 59 74		Oct 26	31 98	
1829 Nov 25	3 4 51 30		27	11 22		22	59 57		27	32 10	
27	51 18		Nov 19	11 03		24	59 72		Nov 16	32 05	
Dec. 3	50 97		20	11 03		26	59 73		19	31 93	
4	51 02		21	11 15		28	59 70		20	31 96	
8	51 11		25	11 27		23 Eridani δ			21	32 05	
11	51 00		26	11 23		1829 Sept 17	3 35 6 47		25	32 24	
21	51 39		27	11 52		Oct. 26	6 15		26	32 18	
22	51 13		Dec 3	11 26		Nov 16	6 35		28	32 15	
24	50 99		4	11 32		19	6 41		1830 Dec 23	32 15	
16 Eridani τ^4			11	11 36		20	6 33		24	32 26	
1829 Sept 17	3 11 57 37		21	11 24		21	6 39		Piazzani III—183		
Oct 27	57 20		22	11 25		25	6 43		1829 Dec 22	3 42 19 48	
Nov 16	57 24		24	11 30		26	6 48		28	19 54	
19	57 22		26	11 26		27	6 56				
20	57 16		28	11 28		Dec. 3	6 60				
21	57 31		19 Eridani τ^5			4	6 59				
25	57 48		1829 Sept 17	3 26 16 87							
26	57 39		Oct 26	16 74							
27	57 63		27	17 00							
Dec 3	57 39		Nov 16	16 73							
			19	16 67							

{Piazzi III—187} B A C 1206 }			35 Tauri λ			38 Eridani α ¹ , continued			Reticuli α, continued		
1829 Dec 8	h m s	3 43 27 62	1830 Jan 5	h m s	3 51 16 16	1829 Dec 11	h m s	4 3 34 32	1829 Dec 22	h m s	4 12 15 19
						22		34 24	24		15 29
						24		34 37	26		15 31
						28		34 30	28		15 16
32 Eridani			35 Eridani								
1829. Sept 17		3 45 45 30	1829 Dec 22		3 52 55 50	1830 Dec 13		34 14	43 Eridani α ⁵		
Oct 26		45 26				15		34 34	1829 Nov 16		4 17 39 01
27		45 51	Reticuli β			16		34 35	20		38 78
						18		34 07	25		39 22
						20		34 33	26		38 97
Nov 19		45 35	1829 Nov 26		3 56 3 82	48 Tauri			27		39 08
20		45 36	27		4 17				Dec. 3		39 04
21		45 55				1830 Dec 26		4 6 7 73	8		39 12
25		45 42	Dec. 3		4 45	Horologii α.			11		39 16
26		45 51	8		4 13				22		39 25
27		45 52	11		4 03				24		39 24
Dec 3		45 62	22		4 44				26		39 23
4		45 53	26		4 10				* N P D 74° 50'		
11		45 46	{Piazzi III—249} B A C 1272 }			1829 Dec 3		4 8 22 21	1830 Jan 8		4 17 55 23
22		45 55	1830 Jan. 5		3 58 15 70	11		22 31	9		55 40
24		45 54				22		22 22	11		55 25
26		45 51	37 Eridani			24		22 30	78 Tauri β ²		
28		45 68	1830 Dec 15		4 2 5 19	26		22 28	1830 Jan 5		4 18 57 94
Hydri γ						28		22 27	Reticuli α.		
1829 Dec. 11		3 49 57 83	38 Eridani α ¹ .			* N P D 127° 39'					
34 Eridani γ			1829 Oct 26		4 3 34 03	1829 Nov. 16		4 9 3 64			
1829 Sept 17		3 50 6 00	27		34 28	54 Tauri γ					
Oct 26		5 77				1829 Dec 8		4 10 7 71	1831 Jan 25		4 20 3 91
27		6 08	1829 Oct 26		4 3 34 03	9		7 70	Caeli β		
			27		34 28				1829 Nov 16		4 25 37 59
Nov 16		5 92	Nov 16		34 16	1830. Aug 12		7 54	20		37 67
19		5 86	19		34 23	Reticuli α			26		37 91
20		5 85	20		34 18	1829 Nov. 27		4 12 14 95	27		37 67
21		5 95	25		34 26	Dec 3		15 06	Dec 3		37 81
25		5 98	26		34 23				8		37 87
26		6 05	27		34 28						
Dec. 3		5 94	Dec 3		34 35						
4		6 15	4		34 28						
8		6 07	8		34 34						
9		6 03	9		34 16						
10		6 10	10		34 27						
26		6 07									

Caeli δ , continued			Caeli α			63 Eridani			15 Orionis					
1829 Dec 11	h m s 4 25 38 01		1829 Nov 20	h m s 4 35 5 00		1829 Oct 27	h m s 4 51 47 91		1829 Dec 9	h m s 4 59 58 44				
22	38 10		25	5 36		Nov 16	47 61		10	58 57				
24	37 83		26	5 19		20	47 50		B A C 1592					
26	37 94		27	5 12		25	47 47		1831 Jan 27 5 0 11 89					
28	37 94		Dec 3	5 14		26	47 78							
			8	5 35		27	47 71							
* N P D 74° 31'			11	5 30		Dec 3	47 76		69 Eridani λ					
			22	5 27		8	47 95							
			24	5 42		11	48 08							
			1830 Nov 29	4 25 57 59		26	5 33		22	47 76		1831 Jan 26 5 1 0 88		
			28	5 27		24	47 86							
			1831 Jan 25	5 13		26	47 88		1831 Jan 26 5 1 0 88					
87 Tauri α			26	5 28		28	47 85					1831 Jan 26 5 1 0 88		
			27	5 15		1830 Dec 23	47 83							
			31	5 19		104 Tauri m								
			Feb 1	5 14										
2	5 03		1830 Jan 6 4 57 24 43											
3	5 19					67 Eridani β								
96 Tauri									1829 Oct 27 4 59 29 71					
			1829 Oct 27 4 44 32 68											
1829 Dec 9 4 40 1 01						Nov 20 29 46								
			61 Eridani ω						25 29 79					
1829 Oct 27 4 28 56 83						26 29 61								
			Dec 28 56 64						27 29 79					
Doradus α						Dec 3 29 79								
			1829 Nov 16 4 30 19 22						8 29 60					
20 19 40						11 29 72								
			26 19 51						22 29 69					
27 19 48						24 29 80								
			Dec. 3 19 56						26 29 70					
8 19 64						28 29 74								
			11 19 84						1830 Aug. 11 29 72					
22 19 77						1831 Feb. 5 29 83								
			24 19 84						13 29 90					
26 19 84														

19 Orionis β , continued			6 Leporis λ			34 Orionis δ			11 Leporis α		
1829			1829			1829			1829		
Dec 8	5 ^h 6 ^m 22 ^s 23		Dec 24	5 ^h 11 ^m 44 ^s 66		April 17	5 ^h 23 ^m 19 ^s 60		Sept 17	5 ^h 25 ^m 14 ^s 21	
9	22 38		26	44 65		20	19 38		26	14 02	
11	22 21		28	44 74		22	19 07		Nov 26	13 91	
22	22 22		28 Orionis η			May 2	19 29		Dec 3	14 00	
24	22 26					12	19 45		8	14 04	
26	22 18					13	19 52		9	14 02	
28	22 20					18	19 37		11	14 04	
1830.			1829			21	19 36		22	13 94	
Feb. 22	22 12		July 6	5 15 55 81		22	19 37		26	13 97	
23	22 00		10	55 93		25	19 41		28	14 04	
24	22 25		12	55 90		July 6	19 37		1830		
25	21 96		Sept 14	56 01		10	19 45		Feb 4	14 09	
26	21 99		Oct 27	55 90		12	19 36		1831		
Mar 9	22 26		Nov 25	55 98		14	19 41		Feb 5	14 01	
10	22 22		26	55 90		15	19 39		13	14 08	
11	22 28		Dec 3	55 87		16	19 37		122 Tauri		
13	22 21		8	55 86		21	19 38				
15	22 24		11	56 23		22	19 36		123 Tauri ζ		
16	22 23		117 Tauri.			23	19 47				
17	22 14					Oct 27	19 44		24	19 44	
18	22 19		Nov 20	19 27		26	19 51		1830		
19	22 24		25	19 45		Feb 22	19 50		Jan 6	5 27 11 97	
20	22 28		27	19 54		23	19 43		Feb 3	12 14	
25	22 27		1830			24	19 51		Dec 28	11 95	
27	22 21		Jan 6	5 18 9 88		25	19 38		46 Orionis ϵ .		
Aug 11	22 34		9 Leporis β .			26	19 39				
12	22 28					1829			Mar 9	19 45	
13	22 22		Sept 14	5 20 57 64		10	19 41		April 17	5 27 35 35	
20 Orionis τ			17	57 95		11	19 44		20	35 43	
			Nov 20	57 41		13	19 52		21	35 39	
			25	57 65		15	19 38		30	35 40	
			26	57 54		16	19 46		May 2	35 44	
27	57 59		17	19 49		10	35 37		12	35 31	
Dec 3	21 27		18	19 51		11	35 26		13	35 26	
8	21 26		19	19 46		12	35 41		14	35 41	
11	21 41		20	19 43		13	35 45		18	35 45	
24	21 28		22	19 38		14	35 33		19	35 33	
1830			25	19 38		18	35 34		21	35 34	
Dec 15	21 39		27	19 48		22	35 39		22	35 39	
16	21 26		Dec. 23	19 42		46 Orionis ϵ .					
20	21 30		24	19 41							

46 ORIONIS ϵ , continued			50 ORIONIS ζ , continued			Columbæ α , continued			53 ORIONIS κ , continued		
1829 July 12	^h 5	^m 27 ^s 35 35	1829. May 21	^h 5	^m 32 ^s 10 85	1830 Feb 4	^h 5	^m 33 ^s 29 67	1829 July 21	^h 5	^m 39 ^s 41 78
13		35 40	22		10 96	22		29 53	22		41 65
14		35 43	25		11 01	23		29 39	23		41 64
15		35 30				24		29 51	24		41 63
16		35 46	July 6		10 84	25		29 38	26		41 74
21		35 39	10		11 03	26		29 41	27		41 74
22		35 30	12		10 88	1831 Feb 17 29 51			Sept 14 41 66		
23		35 23	13		10 99						
24		35 31	14		10 99	130 Tauri			Oct 27 41 46		
26		35 39	15		10 91						
27		35 38	16		10 89	1830 Feb 3 5 37 31 75			Nov 20 41 35 26 41 52		
Oct 27		35 38	21		10 89						
Nov 20		35 07	22		10 97	Dec 28 31 28			1830 Mai 9 41 62 10 41 80 13 41 75 15 41 73 16 41 61 17 41 73 18 41 81 19 41 82 20 41 69 23 41 63 25 41 69 27 41 83		
25		35 36	23		10 96						
27		35 30	24		11 04	Columbæ μ			Doradus δ		
			26		11 16						
			27		11 11	1829 Sept 17 5 39 41 11 21 40 95 26 40 86			1831 Jan 25 5 44 28 23		
			Nov 20		10 77						
48 Orionis σ			1830 Mai 9		10 98	Nov 25 40 89			Columbæ β		
1829 Oct 27	5 30	12 91	10		11 00						
Nov 26		12 79	13		10 99	Dec 3 41 02 11 40 91 28 40 88			53 ORIONIS κ		
Dec 3		12 88	15		11 08						
22		12 88	16		11 02	1830 Feb 4 41 05			1829 Nov 26 5 44 58 11		
26		12 82	17		10 95						
28		12 93	18		11 03	Columbæ α			1830 Feb 4 58 16		
			19		11 01						
126 Tauri			20		10 93	58 ORIONIS α			1829 April 11 5 45 58 37 13 58 13		
1830 Feb 3	5 31	28 46	22		10 87						
Dec 28		28 42	23		11 04	May 2 41 73 11 41 76 12 41 55 13 41 65 14 41 79 18 41 56 19 41 87 21 41 72 22 41 78 25 41 69					
			25		11 08						
50 ORIONIS ζ			27		11 00	July 6 41 61					
1829 April 17	5 32	10 90	28		29 68						
20		10 98	1829 Sept 14 5 33 29 57 17 29 73 21 29 57 24 29 18 26 29 63								
21		11 07									
30		10 94	Nov 25 29 55 26 29 55 27 29 45								
May 2		10 97									
11		10 98	Dec 3 29 54 8 29 48								
12		10 78									
13		10 95	11 29 58 22 29 75 26 29 69								
14		10 88									
18		10 92	28 29 68								
19		10 93									

58 Orionis α , continued		58 Orionis α , continued		Columbæ γ		1 Canis Majoris ζ	
1829		1830		1829		1829	
April 15	5 ^h 45 ^m 58 ^s 03	Jan 5	5 ^h 45 ^m 58 ^s 39	Nov 27	5 ^h 51 ^m 30 ^s 46	April 17	6 ^h 13 ^m 47 ^s 38
17	58 28	6	58 44			27	47 41
20	58 10	8	58 30	Dec 3	30 61	Sept 21	47 19
21	58 07			1830		22	47 04
27	58 21	Feb 8	58 22	Feb 4	30 94	23	47 23
30	58 36	22	58 28			Nov 25	47 15
		23	58 14	18 Leporis θ		27	47 22
May 1	58 32	24	58 13			Dec 3	47 25
2	58 16	25	58 12			2 Canis Majoris β	
11	58 19	26	58 11	1829		1829	
12	58 16			Sept 13	5 58 27 69	April 15	6 15 12 90
13	58 09	Mar 9	58 25	21	27 68	20	12 90
14	58 11	10	58 14	24	27 46	21	12 93
18	58 17	11	58 30			May 12	12 77
19	58 19	13	58 17	Nov 25	27 74	13	12 91
21	58 16	15	58 18	26	27 68	14	12 99
22	58 12	16	58 16	27	27 64	19	12 85
		17	58 30			21	12 75
July 6	58 08	18	58 18	Dec 3	27 79	22	12 71
13	58 26	19	58 19	11	27 62	July 12	12 76
14	58 18	20	58 18			13	12 90
15	58 15	23	58 24	1830		14	12 87
16	58 23	25	58 22	Feb 4	27 80	15	12 89
20	58 27					16	12 80
21	58 17	April 3	58 29	* N P D 70° 11' ±		21	12 83
22	58 22			1830		Sept 13	12 92
23	58 11	Aug 11	58 14	Jan 7	6 3 41 96	23	12 76
24	58 17	12	58 24			24	12 83
26	58 19	13	58 25	71 Orionis		Nov 26	12 81
				1829		Dec 11	12 89
Sept 13	58 27	Sept 15	58 18	Dec 10	6 4 50 80	1830	
14	58 17	21	58 17			Feb 4	12 78
15	58 17			5 Monocerotis		Argûs α	
17	58 37	Oct 3	58 05	1829		1829	
21	58 16	Dec 13	57 93	Sept 13	6 6 33 83	April 15	6 20 10 60
23	58 15	15	58 10	21	33 79	17	10 64
24	58 16	16	58 00	23	33 88	20	10 71
26	58 18	18	58 01	24	33 85	21	10 86
		20	58 33			27	10 73
Oct 27	57 99	23	58 18	Nov 25	33 88		
		24	58 17	26	33 83		
Nov 16	57 95			27	33 93		
25	58 17	1831		Dec 3	33 96		
27	58 18	Mar 7	58 41	1830			
		15	58 19	Feb 4	33 97		
Dec 3	58 21	16	58 21				
4	58 20	17	58 21				
8	58 22	21	58 28				
9	57 99	22	58 21				
10	58 12	23	58 34				
11	58 25	26	58 25				
22	58 24	27	58 20				
26	58 21	28	58 20				
28	58 27	29	58 22				